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ABSTRACT

This training manual is designed to prepare behavior assistants to teach parents and other family members how to use operant conditioning techniques to solve family problems with children. Readers are warned not to attempt to put the recommended procedures to actual use until the text is fully comprehended. Chapter I gives arguments to justify the use of operant conditioning techniques within the family setting. Vicious and positive cycles of interactive events are described and punitiveness is distinguished from operant mediation. Chapter II details basic principles of operant mediation. The core concepts of operant conditioning are described and illustrated in non-technical language. Chapter III sequentially outlines and discusses elements of the mediation process. Referral behaviors are distinguished from focal behaviors. Mediator tasks include observing the focal person and the occurrence of focal behavior, keeping records, dispensing tokens, delivering back-up reinforcers, and evaluating the mediation. Further dimensions of the mediation such as selecting the in-family mediators, maintaining the difference between operant mediation and contractual management, and setting up the token system and the menu of back-up rewards, are discussed. In Chapter IV various parent arguments against the use of operant mediation are analyzed and solutions to parental objections are suggested. (RH)

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Managing Children's Behavior

For Any and Everyone Faced With the Task*

A Training Manual for Behavior

Assistants and Mediators

by Dorothy Tennov, Ph.D.

PS 010205

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*formerly titled "Family Mediations (Unexpected Reward Method"

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How to Use this Manual

Although this manual is self-contained, those who have not had prior experience will require at least two readings before full comprehension can be expected. Chapter III is the how-to-do it chapter. But Chapter II, Basic Principles, will make Chapter III more comprehensible. On the other hand, Chapter II may be somewhat confusing, especially for the non-psychology student, if you have not read Chapter III, partly because terms like "mediator" are used in Chapter II but not explained fully until Chapter III.

The recommended procedure is to read the entire text once for orientation, then go back and read it again for full understanding. It is especially important that you do not attempt to put the procedures to actual use until you have achieved full comprehension.

Chapter I WHY WE MEDIATE

Introduction

Most college students today have heard the term "positive reinforcement" and are aware that Harvard Professor B. F. Skinner increased bar press rates in rats by reinforcing them with food pellets whenever the animals emitted the appropriate response. But after this, confusion is rampant. Some people feel that the very idea of behavior control is a denial of a fundamental principle on which our cultural philosophy is based. If external events dictate behavior, what happens to individual responsibility? By what logic can we then punish the criminal or reward those whose actions contribute positively to the welfare of others? Sin, an important concept in Western religion, requires that the individual be capable of making a choice. If behavior can be predicted and controlled, how can it also be free?

But dissatisfaction with their philosophical implications is poor grounds for rejecting scientific findings. To ignore the evidence is to assume the role of those who refused to look into Galileo's telescope, as if that refusal could change the movement of the heavenly bodies. The overwhelming research support of reinforcement principles applied to human behavior mandates their use in the deliberate attempt to better the human condition. This book describes the utilization of laboratory-derived behavior principles in natural settings, particularly in family situations. Its aim is to make these methods available to those persons in the environment who can put them to best use.

Some of the recent confusion about behavior techniques has been engendered by placing quite unrelated, even diametrically-opposed concepts and procedures under the same label, "behavior modification." The methods described in this manual do not involve drugs, psychosurgery (cutting or removing of tissue for the purpose of achieving behavioral change), or deprivation of substances and conditions essential to life (or normally available). Nor do these methods involve any form of aversive stimulation. They are based mainly on the principle that conscious and voluntary actions are influenced by events that follow them. We call this type of behavior "operant" behavior, a term derived from the idea of operating in the environment. Operant behavior is behavior influenced by the events that follow it. Positive reinforcement increases the chances that the act will be repeated.

Operant family mediations are designed to help family members reinforce desired behavior in others. That this should be difficult might seem amazing at first. If we know the principle, why do we not simply use it? In reality, many factors gear us away from effective use of positive reinforcement. In the complexity of natural situations, attention is more likely to be attracted by undesirable actions on the part of others. The good things are easily taken for granted or overlooked, particularly when they are in the early stages of development. Behavior that is weak is particularly in need of reinforcement.

Of course, all parents make at least some use of operant methods whether they realize it or not. Maternal affection can almost be defined as the tendency to administer contingent* positive reinforcement. The loving mother shows her delight as baby reaches for a toy, says the first word or takes the first steps. But as the child gets older and as other children in the household increase the demands on parents, and as the interactions among family members increase in complexity, the picture changes. Not only does much desired behavior go unreinforced, but undesirable behavior may be inadvertently supported, as when the temper tantrum is given into because attention was distracted at first and then the parent just could not stand that screaming any longer!

Family operant mediations are designed to trigger into sufficient strength behaviors that the natural reinforcers in the environment will maintain. Choice of behaviors is thus limited by conditions in the child's natural environment. The mediation is itself a course of instruction, and it is terminated when that environment takes over.

This seemingly simply idea that behavior is affected by its consequences has extremely important and sometimes unexpected implications. As has already been stated, the principle of positive reinforcement describes the strengthening of behavior which has been followed by consequences that are pleasant or desirable to the person. Consequences that are negative, or unpleasant, may also affect behavior, but not in a clearly equal and opposite manner to the effects of positive consequences. Most attempts to control behavior have traditionally focused on the removal of undesired acts. The operant approach to mediation is based almost entirely on the principle of positive reinforcement and the increase of desired acts. This focus on strengthening behavior through reward represents a clear break with traditional methods.

Why Families?

The principles of behavior which underlie our methods apply to any situation in which people interact to deliver consequences to one another. It is probably true that every human being has some capacity to reinforce the behavior of every other human being in their presence. A beggar can look (or not look) at a king. The student can smile and look attentive (or appear bored). But in planning deliberate operant mediations in which the reinforcement of behavior is managed systematically, it is extremely important to have effective and reliable reinforcers. This is also the reason why most of our mediations are carried out through the use of tokens backed up by visible, tangible rewards. In families, parents control many rewards that can be given to children. While children also control reinforcers that are effective in the control of adult behavior, the types of reinforcers they control are usually more difficult to deal with in the systematic manner required by our mediation plans. Thus it is within families, particularly

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* The term "contingent" is an important one. In this context, it means responding to the baby's actions, not merely giving affection.

in the relationships between the behaviors of parents and those of children, that the methods are put to most effective use.

In a family, the parents have natural control over many things that can be used to reward children's behavior. These include types of food, clothing, recreational opportunities, and various "privileges"--everything from choosing a television program to using the family car. Furthermore, as the society is now organized, it is the responsibility of the parents to train and influence the children so that they leave the family nest prepared to deal with the real world. The task of the parent is to see to it that children venture forth equipped with a behavioral repertoire that will enable them to secure for themselves the rewards the world has to offer, and, as much as possible, to escape its punishments. To this end, parents of the past have arranged for instruction in various skills such as playing the piano, using power tools, and knowing the correct eating utensil to use in a restaurant. At a less conscious and deliberate level, parents teach speech, they teach the fundamentals of living with others, and they teach (or "form") the behavioral tendencies sometimes called "personality." Thus we are concerned with families for two reasons: (1) in families there is the kind of clear control over the reinforcement contingencies that helps us best to see the principles in action, and (2) our efforts are in perfect accord with the responsibility society places on the shoulders of the parent, that of training children in fundamental skills for living.

Freudian and other psychodynamic theories helped to foster the idea that parents were virtually the sole determiners of a person's basic set of traits and that the greater part of this influence took place in the child's earliest years. Undoubtedly, the earliest years are of tremendous importance; they are the time of most rapid and fundamental learning. But in the operant viewpoint behavior is far more flexible and subject to later change. We believe in behavioral change because we are able to make changes. Most of what psychologists used to call "traits," or "dynamics of personality," are behaviors controlled by the contingencies of reinforcement in the individual's current environment. We alter supposedly fixed characteristics of the person by introducing new relationships between behaviors and their consequences.

We begin with an analysis of the situation as it exists when we enter it. We examine the interactions of family members with primary emphasis on the day-to-day, moment-to-moment events that comprise the "mechanics" of their lives together. We ask who gets out of bed first in the morning, who cooks breakfast, and for whom, how are the details of household tasks managed, who chooses the evening television fare, what things do the members of the family do jointly, what is the nature of their physical space, who mows the lawn and who decides when it needs to be done, how much allowance (weekly money) does each child get, where and when does homework take place, and what and where are there trouble spots. We do not emphasize trouble spots, but we note them. We try to find out

(1) What behaviors by family members are desirable and need, if

anything, only to be strengthened.

(2) What undesirable behaviors exist and how are they being kept in strength.

We analyze the situation in search of ways that a mediation can produce improvements. The details of that process and how mediations are actually carried out is what this book is about.

Vicious Cycles

Sometimes undesirable events lead to other undesirable events (which in turn lead to still other undesirable events) in what is called a vicious downward spiral. Probably we have all experienced the phenomenon in one or another of our interpersonal relationships. Misunderstanding piles on misunderstanding, recriminations produce more recriminations. Former friends have a "falling out." Regretful as this always is, when it occurs among unrelated persons the consequences are different from what they are when family members get involved in vicious cycles with one another. Former friends are usually able to walk away from one another. The estrangement of family members is far more painful and disrupting. It involves persons who may be economically and socially dependent on the family. Children who run away from home may not find safe refuge.

Even when a bad turn of interactive events is mild, we still use the term vicious cycle, and we still deplore the process because it undermines the quality of life for those involved.

> At the dinner table one evening, William's father was feeling disgruntled about recent happenings at the office. He was also coming down with a cold. William was in a very different kind of mood having just been asked to be captain of the sport's team and after scoring 100% on an English exam. He was so happy, as a matter of fact, that he was just a little giddy. As the meal proceeded William's father became increasingly upset and finally, in a fit of anger, shouted at William that he must leave the table immediately and that he would not be given the money promised him for new baseball equipment. This was terrible, but the worst was yet to come. In the ensuing weeks, mealtimes became more and more difficult. The father's job situation did not improve and he flared up over the slightest error or disruption on his son's part. Defensively, William kept a distance from his father which made matters even worse. The father began to look for irregularities in William's behavior. Under his father's hostile gaze, the son's behavior actually deteriorated.

In a vicious cycle, one bad thing leads to another. But as unpleasant, even tragic, as a vicious cycle might be, it is not "psychopathology." It is a

common occurrence that takes place through ordinary and universal behavioral laws. Pathology implies damage or disease. It also implies that cure will be a difficult and expensive process when the pathology is of a behavioral or "psychological" nature. But viewing these unpleasant interactions as the result of normal and well understood processes tells something about how to change them. The mediations described in this book redirect vicious cycles so that things are set back on a positive course.

Positive Cycles

Positive, sometimes called "virtuous," cycles are as natural as are vicious cycles. Fortunately, they probably occur much more often than do their negative counterparts. But since the bad is more visible, the positive cycles are more likely to go unnoticed and unanalyzed.

> Jim's daughters Miriam, eight, and Ellen, ten, were introduced to their new step-sister, Vivian, shortly before Jim and Vivian's mother, Fay, were married. Fay and Jim were naturally very concerned about how the girls would get along together. At first, they had little to do with one another. At fifteen, Vivian was busy with many activities outside the house, and Jim's daughters were somewhat shy. But when summer came, the family rented a house at the shore for several weeks. Although there were other families nearby, and other teen-agers, Vivian spent most of her time with the family. She was very cooperative when it came to supervising the children in the water. When the three girls sat together on the beach, they talked about things of mutual interest which surprised Vivian because of the difference in ages, but the two younger girls were very interested in hearing about Vivian's high school experiences, about how to use cosmetics, and about Vivian's adventure the previous summer when she was lost in the woods for two days. After the family returned to their home, the behavior of the three girls had changed. Ellen often went in to Vivian's room to watch her while she dressed.. Miriam also showed Vivian more attention. Although Vivian was once again involved with her own friends, she had grown to like her little step-sisters and at least once a week she would take them for ice cream or bring home some kind of gift for one or the other.

Had the initial behaviors of the persons involved been aversive, these new relationships might have gone differently. Furthermore, downward spiral in the future could still occur. One can imagine the following:

> After a while, Miriam became jealous over the attention her sister was giving to Vivian. Vivian began to show her frustration by making nasty remarks to Miriam, by

> complaining to her father about Miriam, and by being generally disgruntled. Ellen and Vivian were less inclined to be in Miriam's presence, and Vivian even took Ellen along when she went shopping without asking Miriam to join them. Fay became more critical of her daughter's behavior. Jim blamed his wife and step-daughter for the fact that his own daughters did not get along as they had in the past. As Jim continued to put pressure on his wife, she resorted to demanding that Vivian stay home in the evening, and then punishing her by withdrawing privileges whenever she was late. Vivian began to feel very isolated and misunderstood.

Negative cycles are often accelerated when parents try to reduce negative behavior through punishment.

> In the Bartlett family, the trouble began when someone gave three-year-old Jay a noisy pull toy. Although children have usually given up that type of toy by Jay's age, he found that he received a good deal of family attention because of it. But the noise it made was truly irritating. Finally, Jay's father felt he could stand it no longer. He picked up the toy and placed it on the top shelf of the coat closet out of sight and out of reach. Jay cried for a while, then picked up one end of his wooden train set and pulled it about the house as noisily as possible. This time he was spanked, which greatly upset his mother and an argument between the parents ensued.

Permissiveness Vs. Punitiveness

Conscientious parents who are trying desperately to do the very best for their children are often trapped in the middle of their wish to use only positive reinforcements and their tendency toward punitiveness, especially in an emergency, or when angered. So are teachers, office managers, and anyone else who must deal with others. We have been taught that the punitive approach is undesirable, but we have not been taught how to avoid it. Operant mediations are designed to help solve that dilemma, especially to teach ways of increasing the use and effectiveness of positive reinforcement and decreasing the use of punishment.

The tendency to punish behavior is greatest when the behavior is annoying or when it causes discomfort, or if it appears likely that it will result in an undesirable event. Sometimes the behavior is not in itself a problem, but it has been "paired" with undesirable events in the past.

> We were sitting on the porch when Celia came out of the house with a large red ball. Her mother interrupted our conversation abruptly to rush over to Celia and angrily take the ball away. "No. You are not to play with this.

> Now just march back into the house and into your room until I call you." It was difficult to understand my friend's behavior until she explained that the red ball had led to several serious disputes with the children who lived next door causing a break in what had previously been a very harmonious relationship with the neighbors.

Although punishment is a major form of conscious attempt to control the behavior of others, in fact it requires considerable energy and is usually turned to only as a "last resort." This means that most of the time the offensive behavior goes unpunished. We tend to await the crisis or emergency. The red ball had come to represent an oncoming aversive.

Too often, children are ignored except during a crisis. Then, when behavior is intolerable, out comes the quick and flashy "treatment," the punitive action that has an immediate effect on the situation, but for many reasons we will discuss at some length later on, also has undesirable effects. In almost all cases those undesirable effects outweigh the benefits. When remedial action consists mainly of aversive consequences delivered only during emergencies, vicious cycling can produce such extreme deterioration in interactions among family members that help may be sought outside the family, through the services of an authority figure. In the past, this was usually a priest or member of the clergy. Sometimes teachers filled the role. In recent decades, the outside authority most likely to be called in is the mental health specialist; a social worker, psychologist, or psychiatrist. The situation is often interpreted as pathological and psychotherapy sought in order to correct or cure it.

Unfortunately, this conception of psychopathology has had a number of ill effects. First of all, psychotherapists do not ordinarily concern themselves with commonplace problems that so often arise in families. An enormous theoretical super-structure may be erected in explanation of problem behaviors that have come about because of poor reinforcement contingencies and lack of understanding of how truly disruptive behaviors can result from allowing reinforcing consequences to follow undesirable acts. "Psychodynamicists" look for explanations of behavior not in the events that follow the behavior, but in the construction and elaboration of theories concerning unconscious desires and feelings. No wonder they have a very poor record when it comes to relieving the problems! In fact, their approach sometimes aggravates the very problems for which help was sought. One way this happens is through the stigmatization that is associated with contact with mental help professionals. The finger of blame is pointed to the individual rather than to the family members' interactions with one another. It also suggests that the person with the problem behavior might be "disturbed" or "neurotic," which to many people's minds still means crazy. The idea that a psychologically sick person is a permanently sick person has by no means died out despite the efforts of mental health propagandists to get the public to view mental illness as "an illness just like any other illness."

The term "psychodynamic" means that problems at the behavioral level are presumed to be merely "symptoms" the real causes of which lie in an inner and unseen "dynamic" that goes on in the unconscious.

> Four-year-old Arthur had got into the habit of mistreating his 14-month old sister, Betty. He would take her toys from her and sometimes slap her.

A psychodynamicist might conclude that Arthur's real problem was jealousy over attention shown to Betty and his fear of retaliation from his father for his sexual attraction to his mother. Whatever the theory--there are various psychodynamic "schools"--behavior is always viewed as the result of something else, and it is the something else that is to be treated.

Applying operant principles involves a very different approach to the situation. Professional assistance in managing family problems is directed to changing actual behavior, initiating positive cycles of interaction, and training persons in the natural environment to carry out mediations. Pejorative labels are never applied. Mental illness or other pathological conditions are not assumed to be the cause of behavioral problems.

Mediation procedures often seem to be strange and even alien. An elaborate system is used to attack what may appear to be the most benign of "problems," while little interest is shown in the "important" things that are happening in the family. This is partly because these methods are preventative: if possible, undesirable behaviors are ignored while family members are trained to use positive reinforcement and to redirect attention toward desirable behavior. Too early reliance only on changed behaviors themselves to support continued use of the system could lead to failure.

Parents control reinforcers for children whether deliberately or not. The purpose of the operant mediation is to make reinforcement contingent on the emission of desired behavior. Noncontingent reinforcement is wasteful and it may inadvertently reinforce undesired behavior. A good way to understand the process is to remember that behavior is strengthened by positive reinforcement whether or not the reinforcement is intentional. Behavior that normally occurs is behavior that is being reinforced. In other words, parents have influenced their children through spontaneously administered rewards before deliberate mediations are ever begun. Most of the good things that their children do are probably because of their effective, if "unconscious," use of reinforcement.

Chapter II BASIC PRINCIPLES

Introduction

Operant mediations focus on behavior and its consequences, that is, on events that follow the behavior. A contingency is the relationship between a behavior and its consequence. When a behavior must occur in order for a particular environmental event to occur, it can be said that the environmental consequence is contingent on the behavior. Operant mediations involve the introduction of new contingencies between behaviors and events that follow them. Behaviorism is essentially a psychology of what can be directly observed. It is not that internal events such as feelings and attitudes are not real, but that they must be inferred from the person's words and actions. They are private, and although we are increasingly able to observe physiological processes through the use of special instruments, no way has yet been found to monitor thinking and feelings as experienced by the person. Since we cannot observe these private events, we cannot make reinforcement contingent on their occurrence.

Feelings and other internal events are often cited by nonbehaviorists as the causes of behavior. Here, the behaviorists could hardly disagree more. Although (like anyone else), they might <u>feel</u> that a particular act occurred because of a particular feeling (I got a drink because I felt thirsty), they have seen many laboratory examples in which behavioral acts reliably followed environmental events and could be predicted from them without any recourse to a consideration of how the individual felt. For example, rather than say the person felt hungry (a nonobservable), it is noted that so many hours had elapsed since food was last available (an observable, environmental event). To deal with the observable is a more promising approach since environmental events can be introduced and modified, which is exactly what we do in operant mediations.

Traits such as good-naturedness, laziness, trustworthiness, reliability, fairness, dishonesty, innocence, and so forth, are also useless when it comes to explaining behavior. A "good-natured" person is one who shows positive feelings through facial expression, who readily offers assistance to others, who is seldom if ever observed to behave in a manner that results in pain or inconvenience to others and so forth. Those are the kinds of <u>behaviors</u> we would expect from someone we call "good-natured." At the level of ordinary communication, such an overall term is a helpful summary. In the same way, if someone is called "lazy" we would hold another set of behavioral expectations. The problem enters when we ask what events are responsible for one person's positive affective behavior or another's refusal to work, and are told that the reasons are they have traits of good-naturedness or laziness. Traits are useful only in summarizing <u>behavior</u>, they are decidedly unhelpful if they give the impression that to name a trait is to provide an explanation, and even as behavior summaries or categories, traits may produce problems.

Johnny's teacher says "he is mean and disruptive." Although the terms "mean" and "disruptive" suggest specific acts, one must go further in the behavioral description of these traits if you are to know for certain what Johnny's teacher is referring to. Only when the specific behavior is known can we begin the process of deciding on <u>focal behaviors</u>, those behaviors for

for which a systematic plan for change is designed. Does Johnny hit other children? Does he take their possessions? Does he speak in class when not called on? Does he pull little girls' hair? Does he pinch? If he does any of these things, when does he do them and how often? What circumstances are associated with the emission of specific acts? Notice that it was not asked what feelings Johnny has or how those feelings developed. The attempt is to change specific behavior through changes in the immediate environment. While it may be that traumatic (or nontraumatic) events in Johnny's babyhood set off trains of happenings that are related to Johnny's present actions, they can be neither observed nor can the time machine be turned back to change them. Only the immediate environment can be altered. Fortunately, there is abundant evidence that changes in the current external world affect behavior even though the roots of that behavior lie in the unreachable past.

Reinforcement

In the laboratory, the white rat in the Skinner box presses the lever more often when the experimenter has arranged that lever-presses are followed immediately by delivery of a food pellet. We say that the food pellets reinforce the lever press response.* According to the principle of reinforcement, positive consequences increase the probability that the behavior will recur under similar conditions in the future. Notice that we talk of probability. We do not say that the food pellets have a fully predictable effect because there are other influences on behavior.

Reinforcement is defined in two ways: First, as a procedure, the meaning is the same as that of reward.** Reinforcing and rewarding, as procedures, both mean arranging for a pleasurable consequence to follow a behavior. But reinforcement also means an increase in the probability of a behavior's recurrence or, more simply, inducing a change in inclination to behave in a certain way.

Although an inclination can be thought of as a feeling, the only way to determine whether a change in inclination has occured is to observe behavior. An increase in inclination means an increase in probability. How weakly or strongly the organism feels the inclination may or may not be helpful in assessing the strength of the change. In fact, feelings are sometimes at variance with behavioral inclinations. People speak of conflict between behaviors and feelings: "I didn't want to do it but I couldn't help myself." "I wanted to do it very much but could not somehow bring myself actually to carry it out." "I had a strong urge to do it but it just did not happen."

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* The term "response" might seem peculiar to some readers. The term is traditional in behaviorist psychology due to the former emphasis on stimulus-response connections. It is in some ways a misnomer to use the term for emitted behavior, but it has value in reminding us that behavior is not uncaused or capricious.

** "Reward" does not refer to a change in response probability (inclination). Rewards may or may not be reinforcing, and it would probably be better to use only "reward" for the procedure, but the term "reinforce" is so widely used that the distinction will not always be made even in this book.

Magnitude of Reward or Reinforcement

If rewards or reinforcements change inclincation to behave in certain ways, we might wonder whether behavior changes are larger, or perhaps faster, when a bigger reward, or a greater amount, is used. It may surprise you that the size of the reward has relatively little differential effect so long as it is large enough. Although we often speak of "powerful" versus "less powerful" rewards or reinforcers, experimental studies have found little difference in behavior as a function of reinforcement magnitude. If one token is effective, the effect on behavior is not doubled by giving two. In operant family mediations, we sometimes give more tokens for more behavior, for example, one token for making the bed, and two if an especially good job of it is accomplished. Making a bed well involves more behaviors than does making a bed poorly.

Timing

It is the relationship between the response and its consequences, what we call the contingency, that changes behavior. If what follows behavior is reinforcing, the behavior is strengthened. When behavior is rewarded after a delay there is time for other behaviors to occur. Those other behaviors may then become the ones strengthened by the reward. But delayed reward is not necessarily ineffective. When instead of reward, a signal that reward is forthcoming immediately follows the behavior, that signal acts as a reinforcer. It is called a secondary reinforcer. Tokens are secondary reinforcers used to bridge the delay between the behavior and "backup" reinforcement.

Numerous learning experiments have found that the optimum interval by which a behavior or a cue to reward precedes reinforcement is at 0.5 seconds. But in a family mediation the child who makes the bed in the morning, may receive tokens after returning from school in the afternoon and yet the reinforcement effect occurs. We assume that some stimulus--maybe an internal "expectation of reward"--occurs immediately after the behavior. Most texts on modifying behavior caution against delays, however. In setting up operant mediations we arrange for reinforcement to follow the behavior as soon as possible. This includes both the time between behavior and token, and the time between token and backup reward.

One of our most useful concepts, the Principle of Small Steps, applies to timing too. Younger persons are less able to tolerate delays than are older persons, and delays are more damaging at the beginning of a mediation than they are later on. We therefore arrange things so that delays are short at first, especially with the very young. "Store Time," the time when tokens are redeemed for backup rewards, may occur twice a day in the beginning of a mediation with a four-year-old focal person. With a teen-ager, backups are typically available for exchange once a week. But later on, even Store Time for a young child may occur only once or twice weekly.

Sometimes delays are deliberately introduced in order that the unexpected nature of the reward be maintained. To give a reward immediately might, especially to the older child, too clearly serve to indicate precisely what behavior is being reinforced.

Genesis

Often in the beginning of a mediation the behavior that is to be strengthened or performed more often has not been occurring at all, or it has been occurring at a very low operant rate. Since obviously only behavior that occurs can be reinforced, how does one bring important desirable behaviors into being? We must take a more active role in getting behavior started. Sometimes we reward a step in the right direction even when the initially rewarded behavior is so far from the goal that it almost fails to fall into the category of "desired."

> Billy was so disruptive at school that it was impossible to keep him in a normal classroom. He would utter strange sounds continually, he would walk up and down the aisle taking things off the desks of other children, he would scream at the teachers if they attempted to reprimand him, and he would throw pencils or other items across the room. After he had been placed in a small-sized special class, the mediation was begun. Reinforcement of academic work was impossible because he never did any. Even sitting quietly in his seat did not occur. As a beginning, it was decided to award Billy tokens whenever he was observed either to be sitting in his seat (although making sounds) or walking about without uttering sounds, provided that over one minute had elapsed since the last time he annoyed another child, threw something or screamed. When sitting at desk and walking without talking had become more frequent, it was possible to alter the reinforcement criterion upward. Eventually sitting without talking became the focal behavior, and still later, actual studying.

Billy's behavior was gradually shaped through the reinforcement of successive approximations to behavioral goals (academic performance). Successful mediations begin with reinforcement of behaviors that are actually occurring, not those which we wish would occur.

Another procedure for bringing desired behavior into existence is modeling. In modeling, someone in the environment exhibits the behavior in the focal person's presence. Babies, children, and even adults have strong tendencies to mimic the behavior of those around them. If one person stands on a busy sidewalk and stares upward, soon others will also be looking up. Once the behavior occurs through modeling, it can then be reinforced.

> Matt was only eighteen months old when he got his first set of nursery blocks. Much of the early play involved modeling by his mother. She placed one block on top of another, and Matt followed suit. She also taught him to put his blocks away on their shelves when the play period was over. She placed a block on the shelf and he copied the behavior. She was careful to reward his putting-away

> behavior with smiles, hugs and verbalizations. She combined the principle of modeling with that of small steps by requiring little behavior at first, then very gradually withholding reinforcement until he had placed several blocks on the shelf. It was a slow process but ultimately a successful one. By the time he was three, Matt not only always put his toys away at the end of his play time, but seemed to enjoy the process. His mother also reinforced his creative efforts and periodically enlarged his collection so that he was not frustrated by an insufficient number of blocks. Matt and his brothers continued to use the blocks as creative outlets throughout their childhood and even into their early teens. Of course, by that time the structures created were very complex and detailed.

The time-honored way of getting someone to do something is to request or to demand that they do it. Or to instruct. But learning to follow instructions or commands is not the same as being reinforced for the behavior itself. The difference is most dramatically revealed when behavior brought about by verbal directives ceases abruptly when those directives are withdrawn. For mediators who have considerable power over rewards and punishers in the situation, for example, teachers, parents and bosses, verbal instructions manage immediate behavior well enough (at least sometimes). But what is being reinforced? Is it the intended behavior, or is it the act of following instructions?

Cue to Reward

Operant approaches (also called the experimental analysis of behavior) view actions as "emitted" behavior. They are not inevitable or reflexive responses to environmental events. In Skinner's terminology, events, "set the occasion" for behavior. The organism learns to emit behaviors in the presence of stimuli which have been associated with reinforcement. In other words, those acts become more likely when the person is again in the same situation.

> Whenever her mother was on the telephone Sally began to demand attention. Her mother gave it in order to "keep peace" so that the conversation could continue. She would take Sally on her lap, give her a cookie, or do other things which she would probably not do were it not for the telephone conversation which she was trying to carry on.

Seeing her mother on the telephone served as a cue to reward, or, technically, a discriminative stimulus, for Sally. It made behaviors which had in the past been reinforced under those conditions more likely to recur. A discriminative stimulus or cue to reward is a signal that reinforcement may come if certain acts are emitted.

When people interact with one another they continually introduce discriminative stimuli. If someone says hello, that makes it more likely that the person spoken to will also say hello, and that in turn leads to other behavior. A person who looks at you and smiles invites a friendly response. Friendly acts

on your part in the past have probably been rewarded in the presence of such stimuli. In trying to get certain behavior to occur so that it can be rewarded in a new situation, cues are introduced that are associated with that behavior in other contexts.

In operant family mediations we usually do not want to cue rewards because the aim is to increase the behavior regardless of whether the cue is present. At the extreme, we might say "I am watching you and I have a reward in my hand. This is a good time for you to show desirable behavior. You will be reinforced if you do." Even when we do not say this, our behavior may speak for us. In fact, certain techniques are used to prevent the person from exhibiting desired behavior only when they* expect that reward might be forthcoming. When rewards are delivered unexpectedly and in many different situations, the chance that the behavior will come to occur only in a limited set of conditions is reduced.

Unexpected reward

Gambling is sometimes so persistent that a gambler is said to be addicted to it. If gambling is defined as behavior emitted persistently in a situation in which reward is possible but unpredictable, much of what one does falls into this category. We can seldom be certain that our actions will result in the hoped-for payoff. Much gambling is not labeled as such but called habit instead. Late night talk show watching on television can be viewed as a form of gambling. More often than not, the entertainment is not "worth" the loss of sleep, but periodically something occurs that is really interesting or entertaining. If the watcher knew in advance just what would happen they would probably not watch the program. They have been intermittently reinforced with no discrimitive stimulus to indicate when the show will be particularly good. Under these conditions watching is persistent.

The focal persons in operant mediations are like gamblers in that they are never quite certain whether or not a given behavior will be rewarded. Because of this, their behavioral changes are not limited to those which are specifically rewarded but extend to other acts as well.

> Roy's mother, the mediator, had decided to reward walking the dog, clearing the dinner table and leaving the house on time in the morning. The number of tokens in his jar when he came home from school depended entirely on whether and in what manner (willingly or grudgingly) these acts were carried out. Those focal behaviors did improve as the weeks went by. But so did helping prepare breakfast, doing homework before watching TV, and cheerfulness at the dinner table. Roy was never certain which acts were specifically reinforced. His behavior showed a general improvement which even extended eventually to academic performance at school.

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* We use the singular pronouns they, them, etc. to avoid using male pronouns as if generic. The reader will become accustomed to the seeming confusion of number.

"Secondary," or Learned, Reward

Not only do people tend to emit behaviors which have previously been reinforced under given conditions, but those conditions, the discriminative stimuli or cues to reward themselves, take on positive value. The general rule is:

Stimuli associated with reinforcement become reinforcing.

Many important implications are derived from this principle. It means that when a mediation is successful not only will desirable behaviors occur but they and the cues associated with them will become rewarding in themselves. There will be a spread of positive effect. This process can be used to explain peculiar and idiosyncratic preferences and tastes. People like that which has been associated with reinforcers in the past, specifically, stimuli that have preceded reinforcement.* Marijuana smokers are said to enjoy the "rituals" of rolling the joints, cleaning and filling the pipe, or whatever specific behaviors precede the act of smoking. We come to like persons who have been present when good things happened to us. We enjoy the familiar rituals with which a favorite television program begins. Such affinities are inexplicable in terms of inherent pleasure. The pleasures are learned through their association with pleasurable experiences.

The person in love comes to like whatever is associated with the person loved. The person loved holds great capacity for reinforcement. Therefore, so do initially neutral (not inherently or intrinsically reinforcing) stimuli associated with the loved person. A type of perfume, popular musical selections, certain activities, places, persons who were present, all take on a capacity to reinforce that may endure even after the romantic affair has ended.

In operant mediation, we deliberately invest the token with secondary reinforcement capacity by pairing it with "backup" reinforcers. Because the process of acquiring secondary reinforcing properties is learned, it is essential that time be allowed for the process to develop.

> Cynthia was receiving tokens regularly but (1) there was no improvement in the focal behavior and (2) she showed little interest in the tokens. The problem was that the tokens had not acquired secondary reinforcing value. They had never been exchanged for backup reinforcers because the items on the menu (the list of backup reinforcers and their price) were too expensive. It was decided that for the next week Cynthia would receive the average number of daily tokens contingent on virtually any "good" behavior,

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* In classical, or Pavlovian, conditioning experiments it has been found repeatedly that stimuli preceding reinforcing stimuli acquire something of the control over behavior that the former originally had. The dog comes to salivate at the tone which had been paired with food. If the tone follows food, however, the result is different. Events that follow a reinforcing stimulus do not acquire the capacity to reward.

> that less expensive items would be made available through the menu, and that ample opportunity for exchanging them would be given. Two weeks later, focal behavior had risen above baseline and Cynthia had come to show great interest in receiving and storing her tokens as well as exchanging them for items on her menu.

Even money derives value from the experience of purchase rather than simply knowing its exchange value. The traveler in Europe carrying currency from three countries knows the exchange value of the "foreign" money, but does not really feel it, at least not at first, not until experiences with purchasing have occurred. Even after several months abroad, United States dollars may still have greater subjective reality to Americans who have been exchanging them for needed and desired items all their lives.

Another implication derived from the principle of secondary reinforcement is that you can get something for nothing. Since cues associated with behavior that has been rewarded themselves become reinforcing, when the behavior is strengthened the amount of reward can be reduced. After a while, deliberate reward can be eliminated altogether. Opportunity to engage in the new behavior may even come to serve as a reward in itself. Verbal acts such as praise that were not initially reinforcing will also take on the capacity to reward after they have been paired with reward. It is important to give the praise before the reward. "That was fine. Here's a token." works better than "Here's a token. That was fine." The reason, as has already been stated, is that it is what precedes reinforcement that takes on the reinforcing capacity. The order of events is crucial, as entertainers know when they save the very best parts of their acts for the end.

The Elimination of Undesirable Behavior

The reason positive behavior is stressed is because the aim in a family mediation is not merely altering the rate of specific focal behaviors. Our aim is also to improve social and interpersonal relationships among family members so that everyone becomes more alert to and reinforcing of positive acts by everyone else. Without deliberate mediations, positive behaviors are often ignored and neglected. If we focused on undesirable behaviors we would risk the danger that undesirable behaviors would receive even more attention. Negative behavior is likely to be noticed; it is harder to focus on the good. The bad is usually bad because it is disturbing, and disturbing means noticed. One of the standard ways of reducing bad behavior is by replacing it with good. The teacher who increases the rate of academic behavior in a pupil automatically reduces the disruptive behavior because the two are incompatible. The child simply cannot study vocabulary words while being disruptive. Positive reinforcement of desirable behavior is probably the best way to eliminate undesirable behavior.

> Mariellen had an annoying way of bringing up unpleasant topics at the dinner table. She would describe in detail everything from her high school science class animal

> dissections, automobile accidents she heard of, and other morbid and gruesome situations. It was kind of a game between her and her ten-year-old brother, Albert. Albert reinforced this behavior with his reactions. Mariellen's parents complained and had several times sent her from the table as a punishment. The dinner table conversation became increasingly strained. Then, with the help of a behavior assistant, they changed tactics. If Mariellen began to tease Albert by mentioning some topic that was objectionable she was ignored. On the other hand, if she emitted any other from of verbal utterance, she was attended to. If she sneezed or coughed, her parents looked at her solicitously. If she said anything about topics that were acceptable, they were quick to respond with interest and comment. Within a week the old pattern had disappeared.

This way of reducing or eliminating undesired behavior is called "extinction." In the laboratory, the phenomenon is simple. When the experimenter disconnects the food-delivery mechanism so that lever-presses are no longer followed by the reward of food pellets, the response ultimately disappears. The removal of reinforcers is a method of reducing the occurence of a behavior. In the case of Mariellen, both an extinction procedure and rewarding of incompatible behaviors was used. Although the parents stopped attending to Mariellen's undesirable behavior, as is typical in real life situations, they were unable to remove all the reinforcement that she was receiving because much of it came from Albert. While extinction is an easy laboratory procedure, in a complex natural setting it is difficult to accomplish because agents over which mediators have no control reinforce the undesired behavior.

> Lynn's eighteen-month-old son, Gary, had learned to climb up on a chair to get to the sugar bowl which he would overturn and then eat the sugar with his fingers. His mother could not make the sugar taste bad (she could have filled the bowl with salt but she did not think of that) but she could remove the sugar bowl. Taking the sugar away led to extinction of the chair climbing behavior. it did not reduce Gary's inclination to turn over a sugar bowl, however, should one come within his reach.

# # #

> Richard Smith was having real problems in his third grade class because of the extremely disruptive behavior of one little girl, Lucy. Because Lucy's antics were reinforced by the other children in the class, he could not use extinction to change Lucy's behavior.

Only when they have control over the reinforcers can behaviorists use extinction as a means of reducing behavior. Sometimes, we control reinforcement of undesirable behavior but do not realize it.

> When the behavior assistant made Linda aware of how she was reinforcing her child's annoying behavior during telephone conversations, Linda was able to remove the reinforcers. No longer did she give in to demands for attention and cookies.

When mediators are able to use extinction as an effective procedure for removing undesirable behavior, they can expect some rough times before success finally occurs. In the laboratory, rats which have grown accustomed to securing food for themselves by pressing their trusty lever show signs of emotionality and unrest when the lever fails them. When rewards are no longer forthcoming, they bite. In fact, the undesired behavior often increases in the first stages of extinction. Careful records and sufficient time must be used to determine the effectiveness of the procedure.

> Linda's first few telephone conversations during extinction were disasters. The baby howled when not given the customary attention and Linda could hardly hear what the person on the other end of the line was saying. She then had a friend call her periodically. During sham conversations, Linda was better able to "ignore" the child's protests.

Because temper tantrums are usually reinforced by parents or other adults, they are best eliminated by a combination of extinction (paying no attention to the child while it is in the tantrum) and finding incompatible behaviors to positively reinforce. If no longer rewarding a behavior leads to its diminution and we try to strengthen behavior by positive reinforcement, does this mean that we must continue our reinforcement procedures indefinitely lest extinction of the behavior occur? On the contrary, our procedures are designed to enable us to stop deliberate reinforcement without eliminating the desired focal behaviors. How this is done is mainly a matter of partial (or intermittent) reinforcement, that is, we introduce a "schedule" of reinforcement which is designed to train tolerance to nonreward (or, in slightly more technical terms, resistance to extinction). Eventually, because we selected behaviors that would be rewarded in the natural environment, we are able to cease all deliberate reinforcement. The occasional rewards that accrue during ordinary living are sufficient to sustain the behavior.

Schedules of Reinforcement

Each act (or "response") is unique. Neither the conditions in which the behavior occurs nor the muscular movements involved are ever exactly the same from one occasion to the next. We define categories of behavior (or operants) in terms of the responses of persons or events in the environment rather than by bodily movements. For example, the operant "picking up a cup" does not indicate which hand is to be used.

> In an adult token economy, Susan was rewarded whenever she was observed to be in conversation with someone who was smiling or laughing. What she did to bring about the mirth was not a criterion for reinforcement.

Operants may be very narrowly or very broadly defined. The focal behavior selected in a mediation might be as specific as eating with a fork or as broad as being "helpful."

Once a set of focal behaviors is defined, reinforcers can then be dispensed according to a "schedule" (a schedule tells when to reinforce). Here is an example:

> Reinforce every time a response in the operant set is observed to occur.

Since behavior must be observed to be rewarded, when to observe also becomes part of the schedule:

> Observe the focal person every day from three to five in the afternoon and during that time reinforce every focal behavior you see.
>
> Same except reward every second behavior.
>
> Or every third.

The last two are "partial" or "intermittent" reinforcement schedules. Laboratory exploration of the effects of schedules has been extensive. Intermittent schedules are superior to "continuous" schedules (in which every response is rewarded) in producing greater resistance to extinction. In other words, if we want the behavior to continue even after it is no longer rewarded deliberately and consciously, we do not reward it every time it occurs. When laboratory experimenters began with continuous reinforcement then very gradually increased the number of responses required for reinforcement, animals have emitted hundreds of responses for a single food pellet. Human beings work the same way. Bosses who pay on a piece work basis are able to make increases in the quotas until workers are paid very little for large quantities of work. Abuses by employers led unions and governments to interfere although the practice is by no means nonexistent among the most exploited of labor groups.*

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* For example, seasonal farm laborers and women, especially minority women, who do piecework at home.

An even more powerful type of schedule than those used by employers who pay on a piece work basis, as has already been discussed, is the kind of schedule in which rewards come both intermittently and unexpectedly. Examples include horse race betting, weekly Bingo at the church, watching a late night talk show, going fishing, and shopping for bargains (especially those "unadvertised specials" announced only in the store). Probably most of the contingencies to which we are exposed in the course of our lives represent intermittent and unexpected schedules of reinforcement. Because these schedules are so powerful in changing inclinations, we use them in mediations.

In the laboratory, analysis of the effects of schedules was aided by identifying four basic varieties:

1. Fixed ratio. Every nth response is reinforced where n is a fixed number.

2. Fixed interval. After a certain fixed length of time the first response to occur is reinforced,

3. Variable ratio. The number of responses required before the reinforcement is given is varied around a predetermined average number of responses.

4. Variable interval. The first response made after an interval of time elapses is reinforced, but the interval is varied around some predetermined average.

These schedules are easy to arrange in the laboratory because of the electronic apparatus used. The schedules are simply programmed in. Setting up such precise schedules in real life situations is much more difficult. Although variable schedules are more desirable in establishing behavioral inclinations that persist, fixed schedules are often used simply because conditions make it difficult to use precisely planned variable schedules. Here are some of the ways intermittent schedules are arranged in family mediation plans:

Fixed Ratio: Bruce Jones wanted his four-year-old son, Billy, to eat without spilling his food. He watched the child and after every three bitefuls managed without mishap he delivered a reinforcement in the form of verbal praise. Later, when Billy's behavior improved, Bruce delivered praise after five bitefuls.

Fixed Interval: Three year old Suzy's focal behavior was playing quietly with her books and puzzles for an hour in the afternoon so that her mother could take a much needed rest. But the rest had to be achieved by first managing Suzy's behavior. Her mother lay down on the couch pretending to sleep. She was actually alert. During the first few afternoons she positioned herself so that she could see the clock as well as Suzy. After every four

minutes, the first "good" behavior Suzy engaged in, such as putting a piece of the puzzle together or looking at a picture book, was rewarded with a token. Later, a "bug in the ear"* reminded the mother to reinforce the first response after longer and longer intervals.

Variable Ratio: The focal behavior for Jimmy was putting away his blocks and cars and dolls when called to supper. His mother, Ruth, sat nearby with a list of numbers in her hand. The list had been prepared earlier from a table of random numbers. After Jimmy had put away the required number of items, Ruth gave him a token. Then she consulted her list to determine the next number of toys required.

The numbers were 3,2,6,1,4, and 5. This series had an average of about 4. Later, the numbers on the list were varied around an increasingly higher average number.

Variable Interval: Eight year old Molly was playing outside. Her father was working in the kitchen and able to watch her easily from the window over the sink. Playing with other children without fights or disputes were the focal behaviors. He would set the kitchen timer, and whenever it went off, go out immediately with a token which he would dispense if he observed focal behavior.** When he returned he reset the timer for a different interval. The intervals, which ranged from one to ten, with an average of seven minutes, had been prepared in advance using a table of random numbers. Since Molly was outside and out of earshot the use of an auditory signal was acceptable. It did not produce a discriminative stimulus for Molly.

The last example deviates from a true variable interval schedule as laboratory defined. The father observed at random intervals but the observation did not necessarily persist until a focal behavior occurred. The difference comes largely from the nature of the electronic equipment which turned "on" in the Skinner box after the interval had elapsed. It was easier for the lever to remain in the on position than for Sam to stop his dishwashing to watch continuously for the focal behavior. If the focal behavior was not occurring when the timer told him to look at Molly, he reset the timer and went back to kitchen chores until it rang again.

Not only are schedules of reinforcement used in setting up family mediations, but the schedules are continually changed as the behavior improves. Ultimately, the focal behaviors persist without continued deliberate reinforcement. The use of schedules with reinforcement contingent on ever-increasing amounts of behavior is called thinning.

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* A "bug in the ear" works the same way as a kitchen timer except that when the times interval has elapsed the auditory signal can be heard by the wearer but not by anyone else. They are used to prevent the giving of cues to reward (discriminatory stimuli) to the focal person.

** It is important to notice that in interval schedules reinforcement becomes available at the end of the interval. The reward is dispensed, however, only after the focal behavior occurs.

> Matilda's focal behaviors included minutes spent doing homework. At first, she received a token whenever she exceeded her baseline level of ten minutes. After a week during which she received a token on three days, the requirements for reward were changed so that twelve minutes of study time was necessary for a token to be dispensed. In this way, the amount of time needed to produce a token was gradually increased. Eventually, study behavior had been shaped until the goal of one hour was reached. The criterion was thereafter not further increased, but rewards were not given each time the criterion was met. Instead, one-hour study periods were reinforced on random intermittent schedules. At first, on the average of one of every two days in which Matilda spent an hour doing homework was rewarded. Later it was one day in three, and, still later, one day in five. In other words, after shaping the behavior by increasing the criterion for reward, reward for that behavior was then thinned so that fewer and fewer instances were rewarded. Eventually, token reward for that particular behavior was entirely withdrawn and the behavior persisted sustained by parental and teacher approval.

In teaching any skill, we use reward often in the beginning. The novice receives closer attention and more frequent rewards. Later on, the new behavior is sustained by much fewer instances of reward.

The choice of a particular schedule depends on many factors in the situation. Where bugs-in-the-ear can be used, the variable interval schedule depends on being able to reset according to a predetermined set of intervals. In a complex situation, this might be difficult. Although variable schedules are preferable since fixed schedules produce less reliable behavior, their use sometimes puts too much pressure on the mediator. A fixed schedule might be used with the behavior needed for reinforcement changed from day to day in a random manner:

> Suzanne's greatest concern was her eight-year-old son's behavior toward her three-year-old daughter. Focal behavior was any positive behavior toward the sister. Continuous reinforcement was used at first. Later, for each observation period, a certain number of focal behaviors produced token rewards. The number of acts required for reward was varied from session to session.

Fixed intervals are usually easier to manage than variable intervals. Sometimes "haphazard" schedules are used. Haphazard schedules are not random, but they are better than fixed schedules so long as they do not involve noticeable cues to reward (discriminative stimuli).

> Molly's father found it was too disruptive of his work to have to check the list of intervals each time he reset the kitchen timer. When he consulted with the behavior assistant about this, they decided that there was no real danger in his setting the timer haphazardly, that is, turning it to a different interval each time without consulting a predetermined list of numbers.

Although there is greater unpredictability in a random schedule, mediation procedures must be workable in the particular situation. Plans do not get carried out on paper, but in the actual behavior of persons who may be under pressure from many other sources.

Noncontingent reward

If rewards are dispensed without regard to the behavior that preceded them, they are delivered noncontingently. Noncontingent reinforcement in the laboratory produced what B. F. Skinner called "superstitious" behavior. When the noncontingent rewards came at brief fixed intervals of only a few seconds, pigeons developed strange behaviors after a few hours. One bird continually spun around in the cage, another stretched its neck upward, a third made rhythmic stepping movements. Skinner explained that what had happened is that whatever the pigeon happened to be doing at the time the reward was received was strengthened. It therefore was likely also to be what the pigeon was doing when the next reward occurred, since the rewards were scheduled to occur at very brief intervals. It is as if the pigeon said, "Well, here's a reward. How did that happen? What was I doing? Oh yes, I was stretching my neck. Well, let's try that again. Whoops! Another reward! I'll try neck stretching once more. It works! Well, it looks like as long as I keep stretching my neck I can be assured of a steady supply of food. That's great! That's just what I'll do." We might also guess that if the procedure is continued long enough and the animal gets fatigued, it might discover that neck-stretching is not necessary or that less vigorous stretching will do.

Because the focal person in an operant mediation is not informed as to precisely what behaviors are rewarded, "superstitious" behaviors may well occur from time to time.

> Joel found three tokens in his jar after school. He did not know which of his behaviors was responsible for their being placed there. That morning, he had capped the toothpaste tube, made his bed, cleared the breakfast table, and engaged in friendly conversation. He had also left for school on time. In fact, the tokens were dispensed for none of these, but for bringing in his father's newspaper. The tokens served to strengthen all of the actions he thought of.

In other words, the mediation process makes good use of superstitious strengthening of behavior. It is one of the reasons why unexpected rewards produce desirable effects beyond their effects on specific focal behaviors. It leads to what is technically called "generalization" in which the effects of reward are not confined to the specific acts rewarded, but spread as well to other behaviors of the category "things I know my parents like me to do."

But there is the danger in "noncontingent" reward that behaviors we do not wish to strengthen will happen to be occurring just prior to reinforcement.

> Winifred did not want to be bothered with schedules. She thought the rewarding idea was a good one, however, so she set up a token system with effective backups. Whenever she thought about it, she gave her six-year-old daughter, Lori, a token or two. To Winifred's surprise, Lori's behavior actually got worse. She had been disruptive, now she was more so. The behavior assistant discussed the situation with Winifred questioning her closely about what it was that led her to dispense tokens just when she did.
>
> "What made you think to give Lori a token?" Winifred was asked. "Well, let me see. I guess I'd give them when I felt she could use one, to cheer her up." The behavior assistant explained that a token used "to cheer Lori up" was actually a token that supported behavior that looked as if it needed cheering up." The rewards were being given in a manner even worse than noncontingently; they were given following undesirable behaviors (e.g., grouchiness) and therefore it is not surprising that undesirable behavior increased.

When we give rewards "noncontingently," some feature in the situation is reminding us to do it. The reason why deliberate mediations are useful is that we "naturally" notice undesirable behavior more readily. Many practitioners of the TLC (tender, loving care) school of child rearing had this problem.

> The teacher's at Mary's nursery school believed that a disruptive child behaved that way as an expression of unhappiness and need for human contact. Whenever Mary was sulking and seemed in poor spirits, they responded with a little extra affection and attention. They did not understand why Mary did not improve.

This is not to say that the unhappy child should always be ignored. Genuine cheering up has its place. As does spontaneous expression of affection. But temper tantrums at home and disruptive behavior in the classroom have been shown in scientific studies to be the result of poorly timed solicitiousness. Attention is an effective reinforcer for most children. We have learned to be cautious about inadvertently rewarding behavior which we do not wish to strengthen. That is a large part of what operant mediations are all about.

Punishment

A contingency in which an aversive condition follows behavior is called punishment. The aversive condition might involve pain or discomfort, or it might mean being deprived of something. Spanking and taking the lollipop away are both forms of punishment. Punishment, like reward, is a procedure, not an effect on behavior.

But what are the effects of punishment on behavior? Is not punishment one of the most time-honored methods of controlling the behavior of others? Expressions such as "spare the rod and spoil the child" suggest the importance of punishment as a technique in child-rearing. Should punishment be used?

The effect of punishment on subsequent behavior depends on other factors. If, for example, a behavior is weak, a mild punishment may cause it to drop out of the person's repertoire. Suppose you go to a new restaurant and find the food to be poorly prepared. Probably, you simply would not return. If, however, the restaurant has served excellent food in the past, bad food on a single occasion, maybe even on several occasions, this might not terminate the tendency to go there.

When punishments are severe, they evoke emotional reactions* over which the individual has little control. The reaction is automatic. On subsequent occasions, conditions associated with the experience of punishment may also produce unpleasant emotional reactions. One effect of punishment is to endow the situation with unpleasant emotional associations.

Punishment also leads to avoidance. In the laboratory, rats in punishment experiments try to escape. They resist removal from the home cage and transfer to the experimental chamber. They try to bite the hand that reaches in to get them. The experimenter wears gloves for safety.** The most common form of laboratory punishment is electric shock. It is easy to administer and its intensity and duration can be regulated with some degree of precision.

Skinner protests the use of punishment in educational institutions. He points out that the children learn to avoid school and to have unpleasant emotional associations to what is taught. When unable to escape entirely, a child may leave "psychologically" by daydreaming or doodling. Because punishment produces negative feelings towards the situation, the child punished in English class for not sitting up straight may come to dislike literature.

It is important to distinguish between the effects of punishment and

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* Skinner calls these "respondents" distinguishing them from "operants." Respondents are reactions more or less reflexly evoked by stimuli; operants are said to be "emitted" rather than evoked by specific stimuli.

** Most of the punishment research, like much of the reinforcement research has been done with animals. One might question both the scientific value of some of this research and particularly whether most of it can ethically be justified. At a time when many are concerned about ethical issues in research, there has been little protest over the frequency with which animals are subjected to painful laboratory procedures.

the reason why punishment is used (i.e., what reinforces the punisher). The reasons why punishment is used will be discussed in a later section. The definition of punishment given here is procedural and the opposite of reward. Punishment and reward are not presumed to have any particular effect on behavior. I stress this point because others in the field of operant conditioning applications have used a so-called "functional" definition in which the definition of punishment includes a lowered tendency of the behavior to recur. The problem with that definition is that is implies that the procedure of punishment invariably produces a lowering of response strength. Definitions that are strictly procedural, like those of reward and punishment, must be distinguished from those that are based on research findings concerning effects on behavior.

If a behavior is both punished and rewarded, the effects of the reward may transcend those of punishment. The person continues to engage in the behavior but feels less happy about it.

> Bruce's parents attempted to stop him from biting his fingernails by scolding him whenever they saw him with his fingers near his mouth. Eventually, Bruce learned (1) not to bite his nails when his parents were watching, and (2) to feel guilty about biting his fingernails. It did not, however, stop him from engaging in the punished behavior.

Masturbation is a reinforcing behavior that has been severely punished throughout recent history. The intense guilt and fear suffered has not prevented its occurrence. Some experts now contend that adult sexual difficulties can be traced to the guilt that punishment of sexual behavior has produced.

A second reason why punishment is not recommended as a technique of behavior control is that increases in intensity of punishment are required in order to maintain a behavioral result. Although sensitivity to pain does not decrease, people learn how to adapt; they learn to compensate for the aversive stimulation to make it less aversive, less punishing. The increase in level of punishment for the same or even less appropriate behavior can be seen in the case of retarded and psychotic children. The level of punishment needed to stop behaviors even temporarily is often very high. New staff in institutions often find themselves "ineffective" until they learn how to be "firm." In fact, because the physical abuse these children receive during "punishment" is often the only attention they receive, punishment may become a reinforcer.

Punishment is therefore ill-advised because it has an adverse effect on the punished person without necessarily producing the desired behavioral change. The obvious question, therefore, is why is punishment not only widely used, but still frequently recommended? The answer is mainly in the immediate effect of punishment on the person who administers it. Punishment disrupts ongoing behavior. Whatever the punished individual is doing at the time is likely to cease, at least temporarily. This provides immediate reinforcement

to the punisher.

> Mr. Robinson heard the neighbors' children shouting outside his bedroom window. He looked out and announced in a menacing tone that if they did not leave immediately he would report their act of trespassing to the police. The children were very frightened and left at once.

To disrupt ongoing behavior the punishment must be fairly strong. Otherwise an attempt at punishment might backfire. If Mr. Robinson's voice had been less threatening, the children might not have left. Or they might have left immediately, thereby reinforcing Mr. Robinson for his verbal threats, but return at another time to retaliate. Those who punish the neighborhood children are more likely to be targets of vandalism on Halloween.

Punishment is prevalent in this society whether as a form of retaliation or purely in an attempt to control behavior. Behavior consultants are wise not to try to get people to "give up" their use of punishment, at least not directly or initially. As the effects of positive reinforcement become apparent, the use of punishment naturally declines.

> Ruth frequently became angry at her children, Ann, 5 and Tom, 8. Their noise bothered her, especially when she had a headache. At those times, she would fly into a rage and strike them when they began to bicker and fight. The operant mediation was focused on rewarding cooperative play between Ann and Tom, and on ways that the children's behavior could make household chores easier for Ruth. Three months after the plan was introduced, Ruth had not once hit either Ann nor Tom during the time the mediation was in effect. She was pleased and amazed at the change in her feelings.

# # #

> The Gleasons cited religious grounds for their insistence that their rigid punishment procedures be continued although they were otherwise willing to cooperate with the behavior assistants in setting up a mediation for their teen-age son, Bert. They subtracted from Bert's weekly allowance amounts specified in advance for such behaviors as coming in later than promised in the evening, failing to complete chores, etc. The mediation focused on social behaviors and academic performance, for which tokens were redeemable for free time, use of the family car and money. The punishment procedures continued although less use was made of them as Bert's behavior improved.

Operant mediations, as already indicated, never involve punishment. But what about emergencies, crises in which there are no alternatives? For

example, what about the child who runs out into the road? There are two important points to be made about punishments and emergencies:

1. The parent who has made effective use of positive reinforcement techniques is unlikely to encounter the behavioral emergency.

The two-year-old who is unsupervised and attended to only when some noticeable problem arises will learn to produce noticeable problems. One of these might be wandering toward the road, a behavior that reliably evokes a response from adults. In other words, the child who wanders into the road may simply be engaging in behavior that has previously been reinforced. The "punishment" of running out, grabbing the baby, and even giving a slap or two and a verbal reprimand may in fact be reinforcing. The child so treated may repeat the behavior with tragic consequences.

The two-year-old who has been rewarded for staying nearby and for obeying parental admonitions is not likely to go off into the road in the first place. On the other hand, it must be admitted that true emergencies do sometimes occur.

2. In a true emergency one might distinguish between spontaneous action that produces immediate suppression of the dangerous act and punishment in the sense of trying to control behavior.

Suppose the toddler has climbed up to the bathroom cabinet and is about to swallow some adult medicine. Mother sees the child just in time, grabs the medicine from the child's hand, spanks, and admonishes. This is common and, in a way, effective. When the act that creates the emergency is not otherwise rewarded, it will probably not be repeated.

> Professor Louise Smith and Professor Varda White were both behavioral psychologists and both parents. But they disagreed about the use of punishment with their children. Smith contended that use of punishment always represented a failing on her part. It happened sometimes but she did not approve or recommend it. White, on the other hand, did not see how punishment could be dispensed with — especially in those emergency situations.
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> One day, White was working in her lab while her five-year-old son, Willy, waited in the supply room. Smith found that he had destroyed some valuable equipment and had strewn index cards all over the floor. White was furious and exasperated, and she reacted in kind. In the scene that followed, Willy screamed while his mother spanked and scolded.
>
> Later, when the two women discussed the incident, Smith said that allowing the child to remain unsupervised in the supply room for such a long time — it had been

almost an hour -- was the real problem. White agreed that that played a role but she had had an equipment failure that demanded immediate attention and the baby sitter was sick. Emergencies can occur. How, she asked, would Smith have handled the situation? How would she have reacted?

Smith thought for a moment. "I do watch my children more closely." But White persisted "Surely your children, like all normal children, do truly unacceptable things sometimes. What do you do?"

Smith confessed that if her children start to do something really undesirable like destroy property or make some kind of mess, she reacts quickly. "I don't let them begin, she said!" "But how do you stop it," White demanded. "I guess I just get in there and am very emphatic."

Actually Smith's and White's actions in emergencies differed mainly in timing. The more continual supervision enabled Smith to interrupt undesirable emergencies because things rarely got out of hand. Supervision of young children is very important. When undesirable behavior is allowed to continue, it may also be intrinsically rewarded as Willy's was by the pleasure he enjoyed while playing with the laboratory equipment and flipping the index cards to the floor. His behavior was also rewarded by his mother's strong attention during the scolding. The chances are good that what Willy "learned" from the incident is not what his mother wanted to teach. He may have learned that extreme behavior is required to end the boredom of being left alone for an hour.

What Smith would do under similar circumstances is: (1) bring attractive play equipment along, (2) be sure that the child is not hungry or thirsty or in need of a bathroom, and (3) look in occasionally to see how things are going and to reward acceptable behavior.

Avoidance of the Unpleasant (Control by Phobia)

When the laboratory apparatus is set up in such a way that shock will be delivered to the rat unless it presses the lever, the rat may learn to press the lever to avoid shock. Acting to prevent an aversive situation is called avoidance, a kind of behavior that has some interesting and unique qualities. Sometimes it is difficult, even impossible, for animals to learn; sometimes it is learned forever through a single experience. It has been theorized that avoidance is reinforced by a reduction in fear. A great deal of our everyday behavior is probably avoidance behavior. We study to avoid failing. We get that article out to avoid missing the deadline. We stop for traffic lights to avoid getting a ticket or getting killed. Whenver we have been accustomed to receiving a reward for some behavior, we might even say that we engage in the behavior to avoid missing the reward. For example, it could even be said that we go to the theater to avoid missing the show.

Sometimes it is hard to distinguish whether given behavior is avoidance or not. In order to be certain, it has to be known how it came into existence. Punishment can lead to avoidance if the person avoids the punished situation and the punished behavior in the future. This may be one of the ways in which punishment "works." A child standing quietly while mother talks to a neighbor might be doing so because of past reinforcement, or it might be to avoid punishment. Can we tell which? Does it matter?

In laboratory experiments, animals on multiple schedules of behavior control have learned to press the lever to obtain food one minute, then, when the schedule (and usually a discriminative stimulus in the form of a colored light) is changed, to press the same lever to avoid shock. The pressing of the lever is the same in both cases; in other ways, the behavior in the two situations is not at all the same. For example, if the animal is given a drug, the drug might affect the avoidance behavior without affecting the positively reinforced behavior. During the yellow light, the animal presses the bar regularly to obtain food on a variable ratio schedule. When the red avoidance signal comes on a moment later, the same animal may show disrupted behavior. Even if the animal is not drugged, it may never learn to avoid shock depending on shock intensity. If shocks are too strong, the animal may "freeze" and never learn to avoid the shock. Some species seem unable to learn avoidance responses. In others, whether they learn to avoid shock depends on what kind of behavior is required of them. When the required response is very different from the animal's natural response to a fear-inducing situation, it may not be possible to obtain avoidance responses.* When the response is a "natural" one, and the punishment is strong, success may be immediate and permanent. Dogs given a strong shock in an apparatus from which they are required to escape will never willingly return to that apparatus.

> Hess's dog, Sara, used to put her nose in his bag of food and get on the bed when Hess was out for the day. Hess purchased a large rat trap and placed it, set, in the food bag. Next time Sara tried to get some food, the trap sprung. Although she was not injured, she was greatly affected by the event. She never again stuck her nose in the food bag. Furthermore, Hess was able to keep her from getting up on the bed in his absence simply by leaving the unset rat trap on the bed. During that single experience, the trap had acquired such aversiveness, that it was thereafter always capable of exerting control.

Children (and adults) who are phobic might be so as the result of a single traumatic experience such as the dog, Sara, had undergone. In most human situations, threats alone are sufficient to initiate avoidance responses provided the behavior is not strong and the promised retaliation likely. Empty threats lose effectiveness.

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* Many thousands of animals have been sacrificed to this finding.

Avoidance-of-the-unpleasant is an important type of behavior and it has been extensively studied in the laboratory. Mediations never involve the deliberate use of avoidance training procedures. In the example above, Hess produced a phobic dog. While the phobia was a convenient one, and maybe the best solution in that situation, it is not a recommended procedure with children — or even dogs if a positive reinforcement alternative can be found.

Why Aversive Control is Used

Punitive concepts permeate our religions and legal philosophies and institutions. The penal code is largely a matter of setting down with some precision (1) what behavior constitutes a criminal act and (2) what is the appropriate punitive action. Despite abundant evidence disfavoring capital punishment as a method of behavior control, the death penalty has not been abolished. Not only do the police carry guns, but some police organizations use particularly harmful weapons. Although the term "behavior modification" is associated in the minds of operant behaviorists with positive reinforcement, perhaps because it is difficult to conceive of nonpunitive means, the term became associated with the relatively rare behavioral methods in which aversive stimuli are used. The inventer of the phrase "Spare the rod, use behavior mod," was trying to get across the idea that positive reinforcement, not punishment, should be used. Too many people mistakenly think that behavior modification is just another, even more sinister, form of punitive control.

Punishment is often the most immediately reinforcing and easiest action for the punisher to take. Nothing is done until the behavior occurs, then it is punished into cessation. It seems easier to do nothing until the crisis occurs. In this book, you will learn how to use positive reinforcement effectively in unexpected reward mediations. The methods are basically preventative rather than ways of dealing with acute or crisis situations. They prevent the crisis from occurring in the first place and they help parents discharge their fundamental obligations and responsibilities in the training of children.

How to Do It

The process of mediation will be presented as a step by step procedure. Because all the steps are highly interrelated, this chapter should be read in its entirety before any attempt to made to begin an actual mediation.

The behavior assistants begin by obtaining a detailed description of family activities, the moment-to-moment events in daily life. What does each member of the family do every day? What time do they rise in the morring? Where and when do they take their meals? Who does what household chores? At what times and in what manner do interactions among family members occur? Where are the trouble spots and what consequences support them? Details of physical arrangements are also important because they affect behavior. Who shares a bedroom with whom? Where is (are) the television set(s)? Who watches what programs at what times of the day?

During the early stages it is important to establish rapport between the behavior assistants and members of the family. Fortunately, most people do not mind, and many actually enjoy, talking about the mundane details of their daily lives, which is just the kind of information needed to develop the mediation plan.

Several categories of behavior are distinguished. Referral behaviors are those the family is especially concerned about. They are the most obvious and troublesome acts and usually are stated in negative form, as behaviors to be reduced in frequency or eliminated. Focal behaviors, in contrast, are desirable acts. The mediation is specifically aimed at increasing these. They are the "good things we want to see more of." It is important that records be kept of the incidence of focal behaviors initially and throughout the mediation, but since extensive record-keeping is very difficult—in fact, any mediation will fail if too much record keeping is required—some focal behaviors will not be charted, or be charted only partially. In the next sections, these behavior categories are discussed in some detail.

Referral Behaviors

Referral behaviors are the problems complained of by family members. Often they are described as traits or personality characteristics rather than as behaviors (e.g., laziness, disruptiveness, jealousy, uncooperativeness, sullenness, unfriendliness, contrariness, selfishness). Usually they are negative; the family would like to reduce or eliminate them. Because operant methods stress the reinforcement of behaviors a family wishes to increase, we do not usually deal with referral behaviors directly. Sometimes, the referral behaviors are turned upside down. Actions that are opposite to or incompatible with the referral behavior may become focal behaviors. For example, cheerfulness (smiling) is incompatible with sullenness, sitting quietly is incompatible with disruptiveness, being helpful is the opposite of uncooperativeness, prompt response to a request is the opposite of contrariness, and so forth. Referral behaviors may help to identify important focal behaviors.

But because referral behaviors are the family's most obvious and troublesome problems, it is often better to stay away from serious and involved negative reactions in order to avoid inadvertently directing additional attention toward them and toward the person exhibiting them. The initial focal person chosen is often someone other than the "trouble-maker." Sometimes the person exhibiting referral behaviors is used as a mediator because mediating (positively reinforcing other members of the family) is likely to be incompatible with the referral behavior.

Focal Behaviors

A focal behavior is a behavior which has been selected by behavior assistants and mediators as one which meets the criteria of observability and amenability to the mediation. It is carefully measured during baseline recording before contingent reinforcement begins and its measurement usually continues throughout the mediation. Changes in these behaviors constitute a source of reinforcement for the mediators and behavior assistants, and a continual measurement of the effectiveness of the plan. Procedural modifications during the course of the mediation are often based on the measurement of focal behaviors. If expected increases in focal behavior rate are not observed, the mediation is reexamined, and altered accordingly. Because an overtaxed mediator cannot function effectively, the job must be kept manageable, even at the expense of securing interesting and helpful information.

> In her enthusiasm for the project Martha Wilson selected four focal behaviors for each of her five children. She kept the contingency charts listing the behaviors on index cards in a file in her bureau and the menus posted on the kitchen bulletin board. She carried the day's quota tokens (cardboard squares laminated with plastic), a different color for each child, in her pockets. When she observed a focal behavior she handed a token or tokens to the child who emitted it. Although the scheme was complicated because of the number of children and behaviors involved, Ms. Wilson had relatively little difficulty in observing and rewarding according to the plan. The problem came with recording. It was not hard to observe and reinforce; it was difficult to keep accurate records of the behaviors. The first attempted solution involved carrying a small notebook so that behaviors could be jotted down at the time and transferred to the charts later. But this only increased the confusion. It was one thing to observe that Lillian had brushed her teeth, recall that that was a focal behavior and reward the act; it was quite another to stop whatever she was doing to record the incident. The children needed her continued attention and she began to notice that disruptive incidents among them would occur while she was busy fumbling with pencil and notebook. Once, the baby almost fell off the bed while

> her mother's attention was thus diverted. This was very upsetting and for a while, it looked like all would be lost. In the end, recording was reduced to just three behaviors, one focal behavior for each of three of the children. The rewarding process continued as before.

It is always better to measure a few behaviors accurately than to have inaccurate accounts of a larger number of behaviors.

Uncharted Focal Behaviors

If the mediation is confined to those behaviors which could conveniently be recorded by mediators, it would be much harder to attain the goals of increasing attention of family members to the good behaviors in one another and the initiating of positive interactive cycles. Therefore, the mediation plan should include specific focal behaviors which are rewarded but not charted.

> Brian's parents selected five behaviors as focal behaviors during their consultation sessions with the behavior assistants: brushing teeth, dressing himself unaided, coming in from play when called, cheerfulness during mealtime, and sharing his toys with other children. To keep the recording task manageable for the mediators in this large and and busy household, only the first two behaviors were charted on a daily basis.

During conferences with behavior assistants, mediators give subjective evaluations of changes in uncharted focal behaviors. Further decisions about the development of the mediation are based on these evaluations.

Partially Charted Focal Behaviors

A compromise between reliance on purely subjective estimates of focal behavior change and continual measurement is periodic behavioral assessments.

> Brian's father was assigned the task of observing his son's playtimes with other children and dispensing reinforcers for sharing his toys. At irregular intervals, he would go to where Brian was playing and determine whether sharing was taking place. If it was, Brian would be given tokens. Once a week, the father took a position from which he could observe the play continuously and made records of Brian's sharing or nonsharing behavior. During the extended observation periods he was careful to dispense the same number of reinforcers as on other days. It was found that Brian's play behavior improved from week to week, a source of great pleasure to his parents, and one that strengthened their faith in the mediation process.

Other Reinforced Behaviors

There is no reason to restrict the mediators' reinforcing behavior to those focal behaviors upon which the mediation plan is based. On the contrary, there is every reason to allow mediators to reinforce other

positive behaviors exhibited by focal persons, behaviors which may not have been planned for or anticipated. Sometimes these behaviors are the result of unusual circumstances.

> As Aunt Sarah was leaving, Billy very sweetly and politely helped her with her coat and kissed her goodbye. His mother was extremely pleased in the change from a sullen teenager to this spontaneous and helpful person. She told the behavior assistant at the next consultation session, "I was so happy, I wanted to hug him. But I knew that he would have been overwhelmed had I made a big fuss and it would probably have even backfired as reinforcement. I was very glad to be able to place a token on his bureau. Tokens give me an effective way of showing my pleasure."

Average Number of Tokens Per Day

The only constraint on the spontaneous rewarding of unplanned behaviors is that the mediators keep track of the daily number of tokens dispensed so that the predetermined average number of tokens per day is maintained. Warning: In every successful plan there will come a day when the focal person will do something that will inspire in the mediator the strong impulse to amplify the magnitude of reinforcement.

"I was so pleased I wanted to give him a hundred tokens." Such mediator reactions should be considered a strong measure of the success of the mediation even though the mediator must be cautioned about giving in to the impulse toward generosity. Although the number of tokens dispensed on a daily basis may fluctuate, the average number of tokens given should be constant over seven to ten day intervals.

> Cynthia was given an average of fourteen reinforcers per day. One week, various disruptions in family schedule and therefore ability to observe focal behavior, caused the number of reinforcements to drop to seven on Monday, five on Tuesday, and five on Wednesday. The three days of "stinginess" threw things off a bit, but were made up for by increased token giving during the next four days so that the average over any seven day period remained close to fourteen.

Who Will Carry Out the Mediation?

In developing specific procedures to be used with a particular family, behavior assistants and consultants take account of the usual family schedule of activities: Who is readily able to observe what behaviors on whose part?

Who is likely themselves to be reinforced by the changed behaviors produced by the mediation? Who are best able to make contact (in the home and on the phone) with behavior assistants to discuss progress and development of the mediation? Who are best able to feel rewarded by the behavior assistant's encouragement?

More often than not, selection of the mediator does not really involve choice: One or both parents, but usually the mother, will turn out to be the person most willing and most available. But sometimes the best person in a given family may turn out to be someone quite unexpected. It might be a grandparent who lives in the home, an aunt who lives in the apartment upstairs, a baby sitter, or an older child. And often the mediation function is shared with persons outside the home altogether — a teacher who reports to the parents on improved academic performance, or an uncle who lives across town but who can deliver backup reinforcers such as rides on his back and the telling of stories. Be on the lookout for such persons. The more people "in the act," the more the positive effects of the mediation will spread. The function of the mediator or mediators is to carry the plan out. Basically, this means:

1. Observing the focal person and the occurrence of focal behavior.

2. Keeping records.

3. Dispensing tokens.

4. Delivering back-up reinforcers.

5. Evaluating the mediation.

If the mediation is shared by the classroom teacher, the child (focal person) who has exhibited the required behavior in school (e.g., learned a certain number of vocabulary words, did a certain number of arithmetic problems, or engaged in no disruptive behaviors that day) is given a "note." This works well because it is easy for the teacher to observe the behavior but difficult to dispense reinforcers. The "note" (a prepared dittoed statement which only needed to be initialed) is a kind of token. Back-up items or privileges are more easily given at home.

Although focal persons are usually children, this does not rule out children as mediators or partial mediators. The same child may be both a focal person whose own behaviors are rewarded with tokens and a partial mediator who observes and reports on another child's focal behaviors, or who helps in the delivery of backup rewards. The advantages of using children include their availability (unlike adults, they are more often at home and able to observe), and the stimulation of virtuous cycles that is likely to result when <u>any</u> other person is drawn into the process of looking for the good in others. Using children as mediators is not like having one child "spy" on another so long as it is positive (desirable) behavior that is observed and reported.

Like any mediator, a child mediator needs reinforcement for the mediation activity. Another advantage to using children as mediators is that it is usually easier to find reinforcers for them.

> In the Martin family 6-year-old Eva was the focal person. Nine-year-old George reported the occurrence of focal behavior (picking up clothes, sharing toys) to their mother. Both children received tokens. One of George's focal behaviors was observing Eva. The grandmother, who visited the family on Tuesdays and Fridays for dinner, brought the back-up reinforcers (trinkets, cookies) with her when she came.

The mediation function was split three ways in the Martin family. Giving out tokens was easily handled by the mother, but getting involved with the back-ups would have taxed her busy schedule. Not only did the grandmother have more time, but she was pleased to be able to play a definite role in the mediation. Both children received considerable social reinforcement from the two women. This was a great change. Before the mediation, a lot of time was spent discussing Eva's sloppiness and selfishness.

In the Martin family, evaluation of the mediation was not confined to recorded improvement in focal behavior. When grandmother visited, she carefully noted the interactions between mother and children and reported to the behavior assistant the number of times that the mother scolded the children and the number of times that the children got into disagreements or outright fights. The numbers diminished steadily as the mediation plan continued which was an additional measure of the effectiveness of the mediation.

This use of measures of effectiveness other than changes in focal behaviors is consistent with the aims of mediation, namely, to effect general and lasting improvement in all aspects of family interactions.

Choosing Initial Focal Person(s) and Behaviors

The most serious referral behavior (i.e., complaint) is almost never chosen as the focal behavior. That would violate what may be the most important behavior principle, the principle of small steps. Begin with something easily accomplished. Focal behaviors are selected according to the following criteria:

1. They are readily observable by the mediator.

2. Their occurrence can be expressed in quantitative form.

3. It is helpful (at least not harmful) to the relationships in the family to have the mediator direct their attention to it. This usually means that it is a good behavior, one the mediator likes to see and wants to see more of. It is behavior that members of the family and other persons in the natural environment will reinforce.

Sometimes it is important to increase behavior that is hard to observe. For example:

> A working mother who lives alone with her daughter wants the child (a) to come in from play early in the afternoon and (b) to complete her homework. If she relies on the child's words, she may be reinforcing lying, not focal behaviors. The behaviors on which the reinforcers are contingent must be behaviors that the mediator is able to observe. In working with this mother, we considered a number of possibilities such as having the mother telephone the child and dispense tokens when the child was there to answer. This might have worked, but the mother was unable to telephone from her office except in emergencies. Having the child observed by a neighbor seemed another possibility, but there was no one whom the mother felt comfortable about asking. It was decided to abandon the original focal behaviors and to use instead notes from the teacher reporting that homework assignments were completed and certain things in the house that indicated the probable after school activities. These included setting the table for the evening meal, bringing in the newspaper, and changing clothes.

In this example, because there were only two people in the family, not only was there no "choice" of focal person, but the mediation functions were too demanding for the mother and had to be shared with someone outside the household. In general, it has been found that mediations in larger families allow more selections of this kind.

> The Sturges family consisted of parents and eight children whose ages ranged from seven to eighteen years. The family had initially sought assistance because the fourteen-year-old-son, Lloyd, had been failing academically and the school psychologist had recommended a mediation. Referral behaviors were Lloyd's failure in school. After consultation and deliberation by behavior assistants, psychologists, and parents, it was decided that the initial mediation would involve the seven-year-old twins, Ray and Judy, and their five-year-old sister, Ruth. Initial focal behaviors for all three children would be brushing teeth regularly and keeping their toys and clothing put away when not in use. Gradually, the other children were also added to the mediation, including Lloyd. The older children Mary, sixteen, and Sybil, eighteen, served both as focal persons and as mediators. They observed some of their sibling's focal behaviors and reported their observations to their mother, Beatrice. Beatrice kept records, made observations, and dispensed tokens in jars lined up on a kitchen shelf — one for each child. George, the father, who was home least often, made some observations, dispensed tokens, and had full charge of exchanging tokens for back-up reinforcers.

The reason for not focusing immediately on the "referral person" was because the issue of Lloyd's school performance had become so emotionally charged that it seemed best not to direct attention to behaviors related to academic performance, or even, at the beginning, to Lloyd himself. After the family has had some successful experiences with mediation, attention to more emotion-inducing behaviors was not so threatening.

Referral behaviors, as I have already indicated, tend to be negative (things the family wishes to reduce or eliminate) or stated vaguely as traits, e.g. laziness, sullenness, uncooperativeness. They are often used to suggest focal behaviors. "Sullenness," for example, suggests smiling and friendly conversation as specifiable and observable focal behaviors. "Laziness" suggests picking up clothes, putting toys away, studying, and cooperating with parental requests as possible focal behaviors.

Here are some focal behaviors that in many cases meet the criteria of observability, quantifiability and general desirability:

making the bed
time between being called for dinner and appearance at the table
number of items of clothing, toys, etc., picked up
pounds lost per week
number of pages read
number of spelling words learned
when the dishes are washed
amount of time spent in play without fighting or shouting at playmates

Quantifiability and direct observability do not entirely rule out some degrees of subjective evaluation. In a mediation in which making the bed is a focal behavior, the number of tokens may further depend on the quality of the job done. A bed entirely free of wrinkles might earn five points, a very poorly made bed only three. Something that either happens or does not is quantitative, and several of these behaviors can be counted for each day for the purpose of charting.

A mediation plan can fail if focal behaviors are chosen that increase vicious cycling. If focal behaviors are chosen that cause attention to be further directed toward undesirable behavior on the part of a family member, difficulties can increase. Here is an example of a mediation that never really got off the ground.

> The teen-aged son of a very religious couple swore frequently. The mediation plan called for them to reinforce him with tokens exchangeable for privileges when he swore less. In order to determine whether he swore less, began by trying to count the number of times a day that he swore. The attention of the mediators was thus directed at behavior that aroused great emotion. Having to count occurrences of this terrible behavior only made it more apparent to them. The situation was intolerable and they did not carry out the plan. Their use of punishment increased. (Adopted from Tharp and Wetzel, 1969, p. 129, case #99)

Since the ultimate function of a mediation is to direct attention of family members toward desirable behaviors, choosing a focal behavior that will initiate vicious cycling undermines the mediation. Those persons and behaviors within the family that evoke the greatest affective response are deliberately avoided. In discussing possible focal behaviors with mediators, it is explained that the techniques of mediation involve taking an unaccustomed view of behavior. Therefore, in order to become familiar with the techniques, they must begin with something easy that has not been associated with emotionality. After mediators acquire familiarity with the methods of operant mediation, more difficult problems can be approached. In actual practice, the initial implementation of a mediation that is indirectly related to a "problem" behavior or entirely removed from it may initiate a series of positive cycles and thus exert a positive influence on the entire framework of family interaction. A focal behavior should, therefore, be something the family would like to see changed, but one that does not matter terribly one way or the other in itself.

> Amy was the youngest child and the one that everyone seemed to have trouble with. Her sisters Ruth and Lillian complained that Amy constantly annoyed them. It was decided that selection of Amy as the focal person was unwise. To do so would mean directing more attention to her. For one thing, because she herself had become an aversive stimulus, it was feared that mediators would resist reinforcing her. The mediation began by using Lillian as the focal person. Amy helped with mediation by making reports when Lillian's room was cleaned. Amy gradually became less aversive to Lillian. Later, focal behaviors incompatible with, but suggested by, the referral problems were selected for Amy. As her behavior changed, Amy became nonaversive to other family members as well.

Choose positive behaviors as focal behaviors. This rule should be observed almost 100% of the time in order to avoid downward cycling within the family. But sometimes, in selecting a seemingly positive behavior, attention to negative behavior results as well. For example:

> The referral behavior for Mary was eating without spilling. She was to be given ten tokens for every meal in which the area around her plate was kept clean. But her mother, who served as mediator, was extremely upset by the way Mary chewed her food. Having to direct more attention to Mary at the table increased the number of other undesirable behaviors observed by the mother causing her to nag and scold. The plan was eventually changed. Mary's mealtime behavior was not the focal behavior any longer. Helping to clear the table and picking up toys became the new focus. After a while, mealtime behavior also became neater although it was never again dealt with directly.

By choosing focal behaviors that will be supported by the natural environment, positive spread of effect is very likely. Not only mediators, but other persons in the environment, will be pleased with improved behavior. They will "naturally" respond to it with praise and attention.

Behavior assistants must walk a fine line between being bothersome and administering adequate encouragement. An effective behavior assistant is sensitive to what the family likes and what it is uncomfortable about. It may be important that a mediator have an opportunity to talk at length about certain aspects of the family situation. Another might be most appreciative of brief, businesslike meetings. Some prefer the telephone after the first few visits; others require face-to-face discussion. Although the family may have to be seen or telephoned several times a week at first, after a few weeks it usually works out that once a week, or even less, is sufficient. Usually, the length of such successive contact will also be diminished. Initial attention is important because the first two or three weeks of a mediation is the time that many new things are learned.

The selected focal behaviors should be carefully measured over a long enough period of time to determine their natural rate of occurrence. Since our perceptual processes are organized in ways that focus away from specific behavior, mediators are induced to refocus on the precise behavior. Support from behavior assistants must be almost maximal during this phase. The following guidelines are used:

1. Initial selection of focal behavior is partly geared to making the counting process as easy as possible.

2. The behavior assistants set up initial graphs and charts. For many, this is the hardest part so it is important that as much help as needed is available.

3. By the ubiquitous principle of small steps, what is difficult at first, gets easier and easier. If keeping records is reinforced, initially by the behavior assistants' encouragement, later by changes in focal behavior, mediators will perform this task well.

Because focal behaviors are behaviors performed infrequently which we wish to increase, it may sometimes happen that a mediator will insist that they know how often the behavior occurs. Unless one is dealing with a behavior that never occurs, the record keeping is important to measure gains. Behaviors which never occur at the beginning of a mediation are not necessarily ruled out as a focus. The initial task becomes that of inducing the behavior to appear so that it can be reinforced. Some strategies for accomplishing this have been presented in Chapter II, under the topic Genesis. Most often, however, it is not that the behavior never occurs, but that the mediators tend not to notice its occurrence. For this reason, it is wise to begin with a period in which the mediator is instructed to look for similar behaviors, if not the focal behavior itself.

In research, baseline response rates are used in determining the effectiveness of a procedure. In applied situations, one may not be able to determine effectiveness with scientific assurance, but for the following reasons it is still important to measure initial behavior:

1. Improvement cannot be measured without knowledge of initial (i.e., baseline) rates.

2. Criteria for reinforcement is set with respect to baseline performance.

3. Baseline recording is an important beginning in the process of training mediators to observe behavior, especially to observe their children's desirable behavior.

Baseline recording is, therefore, not something that occurs prior to the mediation. It is an important aspect of the mediation itself. Behaviors that occur during "baseline" do not necessarily go unreinforced. Spontaneous expressions of pleasure are likely to be emitted by the parent who observes a desired behavior at this time. For this reason, behavior rates often rise during baseline. Behavior assistants point out that this is both natural and inevitable. It shows the effectiveness of positive reinforcement.

Sometimes, the mediator will at this point wonder why a token system is needed when praise is so effective. The behavior assistants point out that although genuine and spontaneous praise is very effective, it usually cannot be relied on. For one thing, praise given deliberately is not the same as praise given spontaneously, and the difference makes deliberate praise less effective. For another, tokens can be dispensed even when the parent is not really pleased with the child's behavior. In a mediation, criteria for reinforcement are set close to the level of previous performance. This may still be far from what is ultimately acceptable.

> Cynthia was described by her mother as the "sloppiest ten-year-old in the county." Because initial level of room-cleaning performance was so low, token rewards were dispensed at first for any improvement at all, no matter how small. It would have been very hard for Cynthia's mother to praise her for hanging up her jacket when the floor was still cluttered with books and papers, the bed unmade, spilled makeup and coke bottles lay on the dressers, etc. The mother was able to go into the room after Cynthia left for school, note the minor improvement, sigh heavily, and place a token in Cynthia's jar according to the plan.

Setting Up the Token System

It cannot be too strongly stressed that the token system must be set up before contingent rewarding of focal behaviors can begin. Before tokens can be used to reinforce, they must have value. Setting up the token system means (a) finding objects to serve as tokens, (b) setting up a menu, and (c) dispensing tokens and allowing focal persons to exchange tokens for backup menu items. After a couple of meetings with behavior assistants, mediators who are impatient to begin and who believe that they understand when they do not, may initiate not a token economy system, but a contractual arrangement. It

is as if when the behavior assistant says "Find out what kinds of objects or events would be effective as backup reinforcers," the mediator hears, "Tell the child what they must do to earn tokens that can be exchanged for back-up reinforcers."

How to Prevent the Mediator From Introducing a Contract

Although behavior assistants are instructors to mediators, the atmosphere should be that of cooperation developed through joint effort, not one in which the mediators follow instructions blindly. Behavior assistants must, however, stress from the outset that with this type of mediation the focal person never knows for sure whether any particular behavior will be rewarded and that this is the essential difference between an operant mediation and a contractual arrangement. In a contract, the parent agrees to give certain rewards if certain behaviors are accomplished. The specifications of the contract may be written out in great detail. Often, the persons involved are actually asked to sign an agreement. Many families use some form of contract on their own. For example, paying Lucy fifty cents for mowing the lawn is a type of contract if Lucy knows in advance that she will be rewarded for it. If her mother says, "Lucy, if you mow the lawn I'll get you a nice surprise," it is still a contract. The important thing is to discuss contracts at the very beginning, during the first meeting between parents and behavior assistants.

Advantages and Disadvantages of Contracts

Rewards promised in return for specific behaviors often succeed in getting those behaviors to occur. Most people spend their working lives under contracts. Furthermore, they prefer it that way. They want to know in advance how much work must be done and exactly what they will receive in return. Such employment contracts control the behavior of both parties. The contract assures workers that the employer will pay the agreed upon salary if the work is done.

But the salary a worker receives cannot be counted on to reinforce the work that must be done in order to obtain it. The contract may be responsible for the fact that the work gets done, but it does not increase the inclination to perform the task. The sight of workers streaming hastily out of the factory at day's end is testimony to that principle. Lucy is unlikely to mow the lawn again "just for fun." If she mows it two weeks later, she will expect to be paid again. If she mows without getting a prior agreement, she will feel justified in asking for the money on the basis that she had been paid before. In fact, she will demand "her" money and feel that she is being treated unfairly if it is not forthcoming.

Recently, researchers in "intrinsic motivation" discovered that paying a person to work on a task can actually cause the task to appear less attractive. In these studies it was found that when subjects believed the experiment had ended, those who had been paid for performance were less inclined to continue to play with the equipment used in the experiment than were those who had performed without pay. An article was published in the most widely read psychological

journal warning that reward methods can be dangerous and should only be used in emergencies! Actually, of course, it was not the reward that produced the decreased interest in the equipment, but the promise of reward *if* the object were handled in certain ways that the subject was required to figure out. We have already discussed the disadvantages of punishment. Contracts inevitably contain the aversive contingency of nonreward. If you do this you'll get that also means that if you don't, you won't.

Thus, they create antagonists out of the parties to the contract. Parents who set up contracts with their children often find themselves having to spend a good deal of time and energy in arguments over whether the behavior has actually been carried out in accordance with the criteria set. If when Lucy comes around for her money, her mother notices part of the lawn that has not been mowed to her satisfaction, she might ask that Lucy trim the edges with the hand cutter, and Lucy might object that trimming the edges was not part of what she considered mowing the lawn.

To clarify the issue, a distinction can be made between two categories of behavior. One category is behavior that must be *managed*; the other is behavior to be *reinforced.* Having a good contract between Lucy and her mother over mowing the lawn, and by good we mean one that does specify in advance whether trimming the edges is included, may be a very acceptable way to manage Lucy's lawn mowing behavior. However, Lucy's mother would probably not find it acceptable to have all of Lucy's household chore behavior within the category of managed behavior. Most parents would resent having to pay their child everytime they took a dish into the kitchen or picked up a newspaper. Indeed, the behavior of keeping one's environment in order is one which has value to all individuals. Persons *inclined* to keep their house orderly and clean are clearly at an advantage. The behaviors selected by parents as their children's focal behaviors in an operant mediation should be behaviors the mediators would like to reinforce, not ones that they merely want to have performed. Predetermined rewards for specified behaviors can, as we have seen, *reduce* the child's inclination to engage in those behaviors on other occasions.

Types of Behavior that should be Reinforced, not Managed

An effective (as well as an ethical) behavior mediation should confine itself to focal behaviors that will produce beneficial consequences to focal persons in their natural environment. In a family, parents naturally want to help their children become generally more effective individuals. The role of parents, and of teachers, too, is to send forth their former charges equipped with behavior inclinations that will help them obtain rewards in the adult world. To that end we teach reading, writing, grooming, politeness and ease in social situations (including some assertiveness). Generally, parents want to strengthen the very behavior that the focal person wants to have strengthened. Children may not feel that they want to read, but they would love it if they could be made to *want* to read. If homework were something they could take in their stride, even enjoy, their lives would be far more pleasant.

A person fully aware of this distinction between procedures that simply get behavior to occur and those that change inclination, might arrange for some contractual situations, but would want to use unexpected reward methods for behavior that must occur in the absence of such agreements and that has consequences of advantage to the individual from the natural environment.

On the other hand, not only do we recognize some value in contracts under some conditions but we are also able to set up a token system with unexpected environmental consequences for specified behaviors (specified to mediator, not the focal person) while contracts are in effect for other behaviors. For example, if a family already has a contract in existence, we would not induce them to change it. The same behaviors "managed" by the contract can even serve as focal behaviors. For example:

> The Smith family had used a contract system for years with respect to kitchen chores in the evening and cleaning the basement, yard, and garage. A list of chores and their value in money was posted on the refrigerator. The system more or less worked except that the parents found it somewhat expensive. There was also a problem of the quality of the work done. Tom was lax about cleaning dishes before placing them in the dishwasher, for example. The operant mediation plan was put into effect with focal behaviors being the quality with which the children completed their contracted tasks. Tom still received money for doing the dishes but he also received tokens if the job was well done.

The Menu

A token has little or no intrinsic value. Physically, it may be a slip of paper with some numbers and words written on it, a poker chip, pennies, buttons, or checks on a prepared card, anything the particular family finds convenient. The value of the token comes from what it can buy, from the back-up rewards. In preparing a menu, we begin by making up a list of items that are probably desired by the focal persons. Whether they are effective will later be tested as purchasing behavior is observed. If the mediator is uncertain about what might be rewarding, the focal person should also be consulted, and one should be prepared to make changes in menus as the project proceeds and new items are suggested. (The best way to set up a menu is in consultation with the focal person. But if relations are strained between the focal person, and mediators, such consultation may not be wise or possible.) Back-up reinforcers may be objects (a new phonograph record), substances (ice cream for dessert), events (your friend will stay for the weekend) or privileges (one hour of television). There are two criteria that they must meet:

1. They must be valued by the person entitled to purchase them.

2. They must not produce aversive consequences for other family members.

The second criterion may be tricky. If one child is allowed to select a television program as a back-up there may be difficulties if this prevents other children in the family from seeing their favorite programs. If the privilege of being free from kitchen chores for an evening is a back-up item,

what about the reactions of whoever does the dishes that day? Sometimes the aversive reactions are very indirect. For example:

> Sally's mother allowed her to purchase an evening of sewing clothes for her dolls using her mother's sewing machine. But it turned out that the noise of the machine bothered her older brother who was trying to study in the next room. The brother, who had full knowledge of the mediation plan, said nothing either to Sally or her mother, but began spending evenings out of the house instead of studying. Later, when the problem became known, sewing was permitted on Saturdays while the brother was at work instead of in the evening.

It is also necessary that back-ups do not place undue hardship on the family budget, a reason why money as a back-up is generally not recommended. This does not mean that one must look for reinforcers that are totally without cost or "trouble" to anyone else. That is probably not possible. But the person who must give up something in order that the back-up be provided should be compensated in some way. Often the pleasure derived by the very behaviors that are the focus of the mediation plan is sufficient. For example:

> The focal behaviors included Susan's keeping her room neat and helping with Saturday housecleaning. While her mother had to spend time, money and energy providing the back-ups (which among other things, included going shopping on Thursday evening) this was not felt as a hardship because Susan's household help so reduced the busy working mother's burden.

# # #

> In another family where television had not been made available to the children because the parents felt the quality of the programming was poor, the increased study behavior which was the focus of the plan made up for the negative effects of some carefully selected television programs which were used as back-ups.

Do not confuse back-up rewards and "prizes." The back-up must be effective, but it need not be large. Selecting good back-ups sometimes requires the creative thinking of all concerned. Not even the focal person always knows accurately in advance what will be most effective. This is one reason why a list (menu) of many items is used. A good menu includes different items that can be purchased for varying amounts of tokens. The following menu was developed for an eight-year-old boy:

Item	Tokens Required
Playing outside 1 hour	15
Choosing dessert for the family	5
Going to the movies on Saturday	50
Watching 1 hour of TV during parent-selected times	20
Visit to the zoo or museum	35
A package of chewing gum	10
Having a friend overnight	30

The token value of the items on the list are determined partially by their desirability by the child and partially by his parents' interests and abilities, and also by the number of tokens earned each day. Although it is as time consuming for his parents to take him to a movie as to a museum, they want to encourage the latter and so they require fewer points (tokens) for that item in the above menu. Since the boy was earning an average of ten tokens a day, his menu contained at least one item that could be purchased with a day's tokens.

We do not build back-ups through deprivation. When an operant plan is introduced in a family, reinforcement should increase and aversive conditions decrease. While it may seem logical that a way to create reinforcer back-ups is to take away things previously enjoyed by the person, this method is doomed to failure because of the generally aversive conditions it generates. If prior to the mediation the children have enjoyed the ability to ride their bicycles without limitation, locking the bicycle up in the garage and using it as a back-up reinforcer is not recommended. On the other hand, quietly removing unused playthings from the playroom of young children and then allowing their use by token purchase can be both effective and inexpensive.* Being rewarded contingently is pleasurable in itself to the focal person. Tokens, back-ups, and the entire process become very positive, possibly because the attention of another human being is of great value. We could see this process in the Robert's family:

> Marge and Ruth were the focal persons of the mediation. Improved academic performance at school was reinforced by messages from the teacher. These consisted of blue cards cut from construction paper with the school stamp on one side and the teacher's initials on the other. At first, their parents provided an excellent list of back-up reinforcers. Later, when the mother became seriously ill and some of the back-ups could no longer be supplied, it was found that the messages in themselves continued to strengthen the focal behaviors.

Because the menu gives the tokens value, and the value of the token must be established before the plan can be carried to the reinforcement of focal behaviors, the menu is the first thing discussed by the mediator and focal person. How this is done can be important. Although the precise details depend on the individual situation, some examples and guidelines follow which will facilitate the formulation of an effective token plan.

The age of the child is one factor. To a three-year-old, one might say, "See these buttons. Sometimes mommy or daddy will give you one." The process of purchase is then demonstrated. Some people use the term "Store Time" for the times when tokens can be redeemed. Store Time may, for example, take place regularly before supper in the evening. Or after lunch. Opportunity to redeem tokens must occur soon enough and often enough. The general rule is: the younger the child, the sooner and more often Store Time should occur.

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* There are a number of possible reasons why this is true: (1) Many unused toys clutter so that their removal creates a better play condition. (2) Children are often encouraged to play with toys that are not used, especially if they were expensive. The child may be glad to see them go because they no longer feel guilty about not using them. (3) Toys of limited availability are sometimes appealing for that very reason.

The menu contract must specify what the opportunities for redemption will be. For little children, a box on the closet shelf may be taken down at this time. Inside, are the toys and trinkets available for purchase. The child must be given full ability to decide on purchases within the limits of the menu.

Strictness and Consistency

In general, tokens should be obtainable only from mediators. Because it is important that tokens not be obtainable illegitimately, the number of tokens dispensed should be monitored.

> When "store time" came along, seven-year-old Sammy had 100 tokens. He bought every item on the menu and still had many tokens left over. His mother was puzzled because she was sure she hadn't dispensed that many tokens. Sammy got very angry when his mother would not allow him to buy more candy (he had already bought all the candy on the menu) and he said he didn't want to have store time anymore. Later, it was found that Sammy had counterfeited tokens by cutting out squares of red construction paper just like he had seen his mother do in preparation for the token plan.

If poker chips or pennies are used as tokens it is especially important that the supply be monitored because they are readily available elsewhere. Messages from the teacher must be initialed or otherwise distinctively marked so that they cannot be counterfeited.

On the other hand, expressions of frustration and dissatisfaction over ability to purchase menu items might arise because of an inherent problem with the procedures. They should be continually re-examined. Perhaps the menu itself is deficient in that all the items on it are too expensive. There should always be something on the menu that focal persons can purchase. Some rules of thumb for setting up a menu are:

1. The menu contains a variety of items covering a range of "prices."

2. At least one, and preferably two or three, items on the menu can be bought with fewer than the average number of tokens dispensed between Store Times.

3. Menu items are not readily obtainable in another way.

4. No deprivation of former privileges is used to give menu items value.

5. Menus are continually re-examined. New items are added from time to time as they are discovered or become available.

6. Menu items do not lead to aversive consequences for other members of the family.

7. Items are not impractical. Menu items do not involve too high a cost to other family members either in money, effort, or time.

8. Prices can be changed, although this is not done in response to the child's badgering (lest badgering be reinforced). Items that are neglected may be too expensive. Cheaper items that are purchased too frequently can be made somewhat more expensive, or the average number of tokens per day may be changed. Just like in any store, some menu items may be placed "on sale."

The following example illustrates some problems and how they were solved:

> Ten-year-old Jay was the focal person in the mediation. Focal behaviors included help with chores, more time spent at homework and reading, and greater "cheerfulness," especially in the morning. His menu contained an hour of TV (2 tokens), a trip for ice cream (8 tokens), an hour of free time on Saturday (4 tokens), and other items. The average number of tokens per day was 12. After a few weeks it was reported that Jay used all his tokens for TV and free time on Saturday and never redeemed his tokens for any other items. Because focal behaviors were showing steady increases, the problem was not seen as serious, but a number of more attractive, larger items (e.g., a trip to the zoo at 30 tokens) were added. Jay responded by cutting down his TV purchases and saving for the larger items.

Notice that in Jay's menu there were several items that could be obtained with a single day's tokens. When people new to the process of operant mediation make decisions about the details of a menu, they frequently make menu items too expensive. Often this is combined with reluctance with respect to giving out the tokens. Under these circumstances, failure is inevitable. To give the tokens value and to teach the focal person how to obtain items on the menu (i.e., how to make the plan reinforcing), tokens must be given at a rate that does not induce frustration, and this must occur before the mediation can proceed further. In other words, rewards are given out before evidence of focal behavior change occurs. Even at the beginning, tokens are not dispensed "noncontingently," that is, without any reference to behavior; they are given for behaviors other than those upon which they will later be contingent. Behaviors on which tokens may initially be contingent are:

1. Helping to suggest items for the menu.
2. Accepting tokens and putting them in a safe place.
3. Any behavior that the mediator sees and likes.

Mediator "stinginess" must be avoided. It prevents the establishment of the value of the tokens.

It is also important to prevent inadvertent strengthening of undesirable behavior at this stage. For example,

> At the outset, Lila's mother had made the mistake of giving tokens when Lila questioned her about the plan. She was being rewarded for showing interest, the mother thought. In fact, Lila had been reinforced for complaining about the prices of menu items, and this undesirable behavior interfered with the operation of the plan. The mother had to learn uncharacteristic firmness in order to extinguish the undesirable complaining about the menu. In the meantime, tokens were dispensed liberally when Lila picked up her tokens, purchased items without complaint, or did other things which pleased her mother.

Perhaps it is part of our Puritan heritage that accounts for the fact that many mediators resist dispensing rewards that are "undeserved." We are accustomed to the idea of rewards, awards, and prizes dispensed with great fanfare and only when the behavior is clearly appropriate. This attitude is very different from that of effective behavioral technicians. Reinforcement is not giving well-deserved reward for perfect performance. It is the systematic use of positive reinforcement in order to build desirable behaviors.

The Contingency Table

The focal person is never given explicit information about exactly what behavior will be reinforced by tokens. The contingency table lists behaviors to be observed and number of tokens to be given if the behavior occurs. It is never revealed to the persons receiving the tokens. The reasons why the focal persons are not informed in advance as to how tokens may be obtained are: (1) only unexpected consequences reliably alter inclination and (2) the contingency table is continually subjected to change, usually in the direction of requiring more behavior per token. (This will be discussed in detail later.)

Here is a sample contingency table for a six-year-old child:

Focal Behavior	Number of Tokens
Coming in from play when called	1
Picking up toys when asked	1 per item
Picking up toys without being asked	3 per item
Sitting at desk with homework	2 for each 10 minutes
Getting through a meal without disruption or complaint	4
Brushing teeth	3
Other	1 to 5

The contingency table is the guide to the dispensing of tokens. It is worked out together with the mediators and behavior assistants and is continually subjected to revision. Guidelines for revising the contingency table are:

1. When behavior increases in rate, the number of tokens contingent on the behavior decreases. For example, if tokens were dispensed for 10 minutes of homework at the beginning, it may later take 20 minutes of homework to obtain the same number of tokens.

2. If the listed behavior does not occur, or occurs rarely, the behavior is shaped. This means lowering the criteria for reinforcement so that behaviors preparatory to the focal behavior will increase. For example, if no homework is being done, sitting at the desk or reading anything may at first be reinforced.

Multiple Focal Behaviors

Notice that the sample contingency table includes several behaviors. There are many reasons why it is a good idea to select a number of focal behaviors from the beginning: It is easier for the mediator to understand that the aim is a generally changed situation, not simply the "conditioning" of specific behavior. It is also wise not to put all one's eggs in a single basket; the plan stands a sooner chance of producing observable success when mediators work to increase several behaviors at once. The "Other" category gives the mediator an opportunity to use the token system for behaviors that are rare (helping Aunt Sarah to the car) or vague (being particularly pleasant as a luncheon companion).

The Recording Process

Before beginning actual reinforcement of focal behaviors, arrangements are made for record-keeping. If possible, objective account of focal behaviors is maintained. On the other hand, the ability of the mediator to keep accurate records without becoming resistant to the mediation must be very carefully assessed. When mediators promise to keep records but fail to do so, a downward spiral of interaction between behavior assistant and mediator may develop:

> Jennifer appeared very enthusiastic about the plan and about her role as mediator. She felt that she would have no difficulty keeping records on several focal behaviors. The task proved more difficult than she had expected, however, and she felt embarrassed and guilty when she found that she could not keep up. She "covered" by inventing her records just before the scheduled meetings wherever she had been unable to observe. After a while she abruptly terminated her contact with the behavior assistants. She complained that the whole thing was too much trouble after all and confessed that some of her reports may not have been accurate.

An overtaxed mediator will be a resistant mediator, and record-keeping is one of the most "unnatural" and demanding of the mediator's tasks. As

advantageous as it would be to have accurate records of all the behaviors listed on the contingency tables, such a goal is usually impossible. On the other hand, some records must be kept. The barest minimum of records that must be kept are:

1. A behavioral measure of the effectiveness of the mediation.
2. The number of reinforcements (tokens) dispensed per day.
3. A record of the purchases made by the focal person.

Changes in focal behavior is the most straightforward method of measuring effectiveness. It also allows for the use of objective criteria in changing the contingency table. The original focal behaviors are selected in accordance with information obtained through baseline recording. When a relatively stable rate of focal behavior occurs, tokens are made contingent on improvement above that rate. Obviously, to do this for all behaviors would necessitate the accurate recording of all behaviors. Later, ways of making the record-keeping process easier will be discussed.

How to Select the Objective Measure of Effectiveness

Choose a behavior in which the chances of accurate recording are maximized. This usually means a behavior that either occurs or does not occur each day, for example, making the bed or putting the bicycle in the garage. But such behavior is a less sensitive measure than is something that occurs in a range of quantities during a single day. For example, whether or not the child studied is less sensitive than how many minutes of studying continued, but measuring time spent studying may be too time-consuming for the mediator. Whether or not studying occurred that day is better than nothing. Number of objects lying around the childrens' room after they leave for school is relatively easy to keep track of since the objects remain stationary for a while and can be recorded at leisure.

Sometimes a referral behavior is used as the measure of effectiveness although it is never directly dealt with:

> Sixteen-year-old James was subject to extreme fits of anger that were quite unreasonable and occurred about twice every three weeks. The mediation was concerned with how James kept his room, a behavior easily observed and one that, in fact, was not really a problem. He began to make his bed almost immediately after the mediation was introduced and the quality of his room-cleaning increased steadily. He also began spending more time in his room, more time at home, and more time studying. Although attention was focused on the room, after three months it was suddenly realized by the other members of the family that there had not been a single outburst of anger in all that time!

Sometimes it works well to have the mediator record one or two convenient focal behaviors as well as an overall measure.

> Beatrice, a working mother, lived alone with her seven-year-old daughter, Susan. Referral behaviors that brought her to the consultant included poor school performance, general "unhappiness" and poor peer relationships. Helping with the evening meal and time spent studying were selected as focal behaviors. Also listed on the contingency table were making or receiving telephone calls in the evening, having friends visit or visiting friends on weekends, "cheerfulness," and room-cleaning.
>
> Each evening before bed, Beatrice checked off on the chart (prepared for her by the behavior assistant) her assessment of Susan's performance of focal behaviors. In addition, she rated the general quality of Susan's emotional status on a five-point scale from very poor to extremely happy. Over the weeks, Beatrice found recording of improvement in focal behaviors was a difficult chore. Often she was too tired to notice things or to remember what had happened. But the evaluation of Susan's emotional level was kept up consistently. It was therefore used as a measure of the overall effectiveness of the plan.

It should be emphasized that had Beatrice been unable to reinforce focal behaviors the plan could not have succeeded.

Observation Periods

By planning observation periods that are short, definite, and fit in well with the mediator's daily schedule, the mediator role is simplified. If these periods are unpredictable by the focal person, generalization of focal behavior to other situations can be achieved although the reward periods are brief:

> It was difficult for Linda to provide continual observation of her son's studying. Mike spent the evening in his room upstairs and Linda spent hers downstairs in the living room. Using a timer, Linda arranged to monitor Mike's study behavior an average of three times during the evening. The timer reminded her when it was time to to up to Mike's room. He was given a token if when the observation was made he was engaged in focal behavior. The thick carpeting in the house helped prevent the noise of her coming from serving as a discriminative stimulus.

Sometimes the mediator's schedule prevents observation except for a fixed period each day. Although the observation period cannot be varied, other aspects of the schedule, including the focal behaviors themselves, can be altered from day to day.

> Later, Linda added the focal behaviors of grooming and cheerfulness. But she had also had a new job which kept her out in the evenings. Mike's studying, which had stabilized at

> an amount consistent with good school grades, was not affected by the change in his mother's schedule, but Linda wondered how she would be able to reinforce the newly selected focal behaviors without Mike's catching on and exhibiting feigned neatness and cheerfulness only when she saw him at supper. A plan was devised in which the focal behavior itself was changed from day to day randomly.

Informing the focal person: What to Say and What Not to Say

It has already been stressed that the focal person must be prevented from perceiving the mediation plan as a contract in which certain behaviors are guaranteed reward.

The focal person is like a gambler in that improved behaviors may or may not pay off. This leads to persistence. The focal person suspects that a certain behavior might result in a positive consequence. The behavior is engaged in, but there is no resentment if the half-expected reward is not received.

> When designing the operant mediation, James' mother said that rewards would be dispensed "from time to time" in relation to "how you keep your room and other things like that."

But many children press for more specific information. They ask, "What do I have to do to get tokens?" and the mediator must be prepared to handle the situation. Several strategies are possible. The child may simply be told that this information cannot be given. Sometimes mediators feel most comfortable if they place the responsibility outside themselves, "I cannot tell you because the behavior consultant says not to." It is more desirable that the mediator retain responsibility and yet is able to be firm and confident, "I'm sorry, but it will do no good to ask me that. I cannot tell you in advance what you must do to get tokens."

The following are some of the things that have been said to focal persons:

> Sometimes, if you do something nice, you may get a token.
>
> You will get tokens for good things that you do but you will not get them for every good thing you do. You won't know before hand.
>
> Tokens will be given for things like being helpful, doing your schoolwork well, and other things that we like to see you do. You know what they are. You just won't be able to tell if any particular thing you do will receive a token.
>
> You know the kinds of things we want you to do. Sometimes when you do them you will receive a token.

> I cannot tell you beforehand what you must do to get tokens. It will not always be the same thing. The behavior that gets a token one day may or may not get one the next day.
>
> You can think of the tokens as my way of saying that I noticed what you did and liked it. But do not ask for tokens or tell me that I should give one to you for anything that you do. I am the one who must decide when the token is to be given.
>
> You will get tokens sometimes when we are pleased with you. Other times you will not get tokens, not because we are not pleased, but because you will not be getting a token every time you do something we like. That's the way the system works.
>
> You will know the kind of thing that may cause you to get a token but you will not know ahead of time that any specific behavior on your part will definitely produce a token.

Whatever the particular words used, the idea must be conveyed that the tokens result from pleasing behavior, but cannot be predicted in any given instance. The mediator's contingency table will include intermittency so that the same behaviors are not consistently reinforced. For example, the following contingency table was used with a ten-year-old girl:

Behavior	Token & Schedule
Making	1 to 5 tokens depending on quality; tokens not given on every 5th, then 2nd, then 4th day.
Leaving the bathroom neat	Up to 3 tokens every other day
Helping with evening meal	2 tokens but skip every 3rd day

Such a contingency table makes it difficult for the focal person to predict reinforcement. Furthermore, the contingency table is changed as behavior changes. If a behavior begins to occur consistently the reinforcement is put on a thinner schedule, that is, fewer tokens are given for the same behaviors.

Keeping Track of the Number of Tokens Dispensed

An essential record is number of tokens dispensed. Average number of tokens per day is set with reference to the prices of items on the menu. A good menu has two or three items that can be purchased with less than a single day's tokens and more expensive items that require an accumulation of tokens over several days.

The following table shows how many tokens were dispensed each day for a week in a mediation in which the average number of tokens per day was set at ten.

Day	Number of Tokens
Monday	5
Tuesday	15
Wednesday	8
Thursday	9
Friday	12
Saturday	4
Sunday	14
Average	9.57

Continuing the Mediation

The contingency tables are revised as behavior improves. In order to maintain a more or less constant average amount of tokens per day, focal behaviors that have gained in strength receive fewer tokens, and other behaviors are added to the list.

> Mr. Jordan was at first mainly concerned with his daughter's "sloppiness" about her room and clothes. Tokens were initially contingent on improvement in these areas. Later, with those problems solved, he added increased studying, making short telephone calls (less than 15 minutes), and cheerfulness.

A Note on Verbal Behavior

Verbal behavior in family situations is often aversive. In most cases, long before an operant mediation is introduced verbal methods of increasing the desired behaviors have already been tried. These usually include requesting, suggesting, demanding, imploring and nagging. Behavior assistants in training usually ask why parental praise cannot be used instead of tokens. But one of the primary advantages of the token system is that it replaces verbal behavior. Even the simple statement "How nice that you did that" may come out sounding like "Why don't you do that more often?" or "Well, you finally did it." On the other hand, the use of tokens can change the associations to verbal behavior. Tokens are dispensed without verbal accompaniment at first. Otherwise, the tokens themselves may be rendered aversive. Later, however, when the tokens have become reinforcing, they can be ~~followed~~ preceded by verbal expressions of praise. By this means, verbalizations reacquire the ability to reinforce. Later, when the mediation has been discontinued, parental praise is effective in maintaining the improved behavior. When behaviors naturally reinforced by the person's social environment are strengthened, deliberate rewarding can be discontinued. Reinforcement is taken over by the environment. The focal person has come to do things that they themselves want to do. This is teaching and parenting at its very best.

But there is often a gap between what people wish to do and what they actually do. Take teenagers and schoolwork, for example: They really want to succeed at school, but the inclination to study is missing. It must be developed.

Parents are also helped to do what they really want to do. They do not want to rely solely on punishment or other aversive techniques but before the mediation they had found themselves focusing on negative behavior and ignoring the behavior that they wanted to strengthen. As the mediation proceeded, they learned to notice good behavior.

Ending the Mediation

Schedules through which behavior is reinforced intermittently also help to end the mediation. Intermittency leads to persistence, and persistence means that deliberate reinforcement may be withdrawn. Furthermore, focal behaviors are chosen with reference to what the environment will reinforce. In theory, the mediation is faded out gradually as the environment takes over, but in practice mediations usually end at the time of some change in family schedule, for example, during the holidays or at the end of a school year or when someone comes to visit. If the end is premature, the mediation is re-instated. If the mediation has been successful, the family will readily reinstate it if new problems develop later on. But future need for mediation will diminish whenever success involves a lasting change in the way members of the family perceive one another — looking out for the good instead of ignoring each other until an unpleasant event occurs. A mediation which is really successful leaves every member of the family feeling better about every other member. Vicious cycles of interaction have been replaced by virtuous cycles and the atmosphere in the household is increasingly happy and cheerful.

Setting up an operant mediation plan, in effect, is the countering of innumerable "natural" tendencies that focus attention away from the behavior in those around us that is in need of strengthening. These elaborate and deliberate methods are geared to oppose such tendencies. They make sense in terms of the learning principles; to the untutored, they appear idiotic, illogical and a tempest in a teapot. The use of tokens to facilitate positive reinforcement of seemingly trivial behaviors appears bizarre to those who are not acquainted with behavior principles. This foreignness makes putting such plans into effect more difficult. Some of the most common problems encountered stem from the fact that the method is so unlike those generally reinforced in this society.

Persons in the family or in contact with family members often engage in actions which interfere in some way with the carrying out of a mediation plan. Such interference comes in many forms; some are obvious, others are very subtle and may even masquerade as cooperation and enthusiasm. Awareness of the potential for things to go wrong is the best way to prevent it. In this section some of the many forms of interference will be discussed, along with suggestions about how they may be handled.

Are you telling me that I am not a good parent, that what I have been doing is all wrong? When a behavior assistant or consultant suggests a mediation plan in which ordinary family activities are dealt with in new ways, it is very difficult to avoid the implication that whatever methods the family has been using are ineffective or harmful. People are understandably defensive about this. They do not like to be made to feel guilty about what they have been doing. Tact on the part of the behavior assistants and consultants means minimizing the implication that the family's present methods are wrong. This is done by showing appreciation of what can validly be praised and by understanding that the introduction of a behavior plan has greater chance of success the less it conflicts with established family practices.

> The Clarks consist of mother, mother's sister Elaine, and three children ages nine, eleven and twelve. Both women held full time jobs and were active in community affairs. It was a very busy household. The method they had developed for managing household chores was rotation and punishment. Each week, the chores of taking out garbage, vacuuming, shopping and dishwashing were assigned to one of the children. If the task was executed properly, there was no particular result, but if an assigned chore was neglected, the child's allowance was reduced. The amount withheld was decided by vote at a family meeting held every Saturday evening just after dinner. Although this method is unlike one that would be recommended by the behavior assistants, they neither criticized it nor tried to change it. The mediation that was developed focused on behaviors other than those on the rotation list. Later, as the effectiveness of positive reinforcement had become apparent to the children's mother and

> aunt, they themselves suggested that tokens be given for chores well done. Although the women had in the beginning been very proud of their method and rightly so, since it was a great improvement over former methods, they gradually changed it. The family meetings continued and were very convenient as a forum for the review of improvements and menu change.

In this example, certain practices were changed during the mediation which eventually influenced previous family methods. It is important to note that the behavior assistants did not interfere with the established methods. This is consistent with the idea of making as few changes as possible when deliberate systems are already in use. Behavior assistants are sensitive to ongoing systematic family methods and they make a point of asking for this information in the initial interviews. This aids in developing rapport with the family members since the behavior assistant's role is to help establish positive cycles of behavior, not criticize or uproot the family's previous attempts.

You are recommending that I use subtle manipulation with my children. I think this is wrong. One should treat children as if they were reasonable, not the pawns of a conditioner. I want to love and respect my children, not condition them. Not many people will articulate this, but it often underlies disinclination to cooperate with the mediation plan. It is a very understandable reaction since it represents the philosophy of many persons in this society. One might even go so far as to say that some of our societal institutions are based on these ideas or variations of them. People are concerned that if the behavior of others can be controlled then how can they be held responsible for their actions? The concept that behavior is determined rather than free can be said to be fundamental to the major religious philosophies of the society since sin can be justifiably punished only if it is committed by a free agent. Furthermore, if control of one person by another is possible, then fears of being controlled may arise, and subtle control is more frightening than direct and overt control. There is also the idea that "humaness" is reduced whenever one asserts that people can be "conditioned" to behave as others want them to. People become mere machines; they have lost their freedom, and with it, their dignity. What value remains to life and living if all is determined, even one's individuality?

This attitude of philosophical resistance may prevent successful mediation. If the individual is able to discuss their feelings or to ask questions, the following are some of the things that a behavior assistant might say:

1. Although the idea of control through deliberate manipulation may be offensive, it has been scientifically established that behavior does reflect the consequences of previous similar acts. This is simply a fact. There are two alternatives: to use this fact, or to ignore it. But to ignore it is to allow individuals and their children to be controlled by accident. Manipulating every influence on all other persons is not possible, but individuals have a certain responsibility to do what they can to prepare their children to live in the world. An operant mediation is a way of doing this more effectively.

2. Actually, the word "condition" has connotations that really do not fit the situation. The focal person is as free as anyone can possibly be. They are not deprived, imprisoned, or the object of unreasonable demands. Nor does punishment enter in as part of a mediation. All the focal person must do in the role of focal person is whatever they feel like doing.

3. It is simply not true that operant mediations ignore individuality. The uniqueness is respected in each situation, each family, each mediator, and each focal person. An individual is the product of their heredity and their environment and no two people have ever had the same of both. Only in the wild imaginings of science fiction is that situation approached. No two visions could be more divergent than Skinner's Walden Two and Huxley's Brave New World. The Skinner society was aimed at permitting each individual to develop and exercise their fullest potential for contribution to society and for enjoyment of living. Huxley showed a world in which the capacities of all members of the society were truncated either physiologically or through conditioning or both. The tasks of the society were defined, then human beings were designed to fill them. Yet because of the resistance within our society to acceptance of the fact of environmental influence on behavior, many persons have been unable to see the difference between the two fictional societies. While it is true that both are based on a concept of "conditioning," Huxley did not realize that his was a very simplistic view of the subject. His book satirizes the gross misuse of psychology. He himself was offended at the idea of behavioral control, especially by the government. The same is true of Anthony Burgess' A Clockwork Orange in which dislike of "mechanical reconditioning" is as great as of violence and brutality. It is unfortunate that these books have served to prejudice many people against behaviorism.

4. It is important to note that through operant mediations, individuals gain control over their own behavior, a feeling valued by all. Good deeds no longer go unappreciated. The mediators have learned that troublesome behaviors can be changed and positive cycles of interaction within the family group initiated.

The whole thing is too complicated and time consuming. I am a very busy person and this is too much trouble. If a mediator feels this way, there are two possible explanations: (1) the initial steps have not been small enough or sufficiently reinforced or (2) too much is truly being required. There are many things that should be done to try to save the situation from failure. They include reducing the plan to an amount that is tolerable, reinforcing that, and expanding slowly in small steps. Other techniques involve basic changes such as splitting the mediation, or changing mediators, focal persons, or focal behaviors. In the Blake family, several changes were made:

> Twenty-year-old Linda, a college student, mediated for her twelve-year-old sister whose focal behaviors were practicing the violin and helping with household chores. The parents had been more concerned about school disruptiveness and poor academic performance of their ten-year-old son, but had been philosophically resistant to

> doing anything deliberate. Linda, who had learned about operant behavior principles in school, did not have such resistance. The plan went well at first, but as the semester progressed, and particularly when Linda began a close relationship with a young man, the task became too much for her. Fortunately, the good results had softened the parents' attitudes towards the mediation. Not only did they take over, but they added their son as a second focal person. Linda still participated by recording some behaviors and dispensing tokens during the time that she was available.

But the Rosen situation was not so easily altered:

> Ms. Rosen lived alone with her sixteen-year-old son, Mark. The mediation required her to examine his room and homework each day and to dispense tokens according to a complex contingency table in which specific behaviors were reinforced according to definite intermittent schedules. Backups were mainly the use of her car at certain times of the week and some staying out privileges. But Ms. Rosen's law practice kept her out until quite late several times a week and demanded a good deal of her time when she was at home. Recognizing that the task of mediation was straining Ms. Rosen's schedule, the behavior assistants removed all items except two from the plan. In other words, focal behaviors were reduced which meant that less observation and recording was required. Length of sessions between mediator and behavior assistants was also cut down as was the number of telephone calls. Later, when Ms. Rosen's schedule had lightened, she requested that more behaviors be added.

The mediator's role is a demanding one and the behavior assistant's job is to set up a plan which will ease the task of tedious record keeping as well as reinforce those efforts. Only robots could deliver complete behavioral records without fail. But because mediators are not automatons and operate according to contingencies as do focal persons, the mediation plans must be ones that ensure that their mediating behavior can be maintained. This means not asking for more than that which will be reinforcing.

I don't want to spoil my children by giving them everything they want. They are supposed to behave well without having to be bribed with a lot of rewards. Some parents find it really offensive to give positive reinforcement. This reluctance may be so intense as to prevent their functioning as mediators. Although it may sound as if it is a philosophical resistance, the real problem may be that meting out reinforcers is aversive to them. This can be a serious problem.

> Lois Williams was recently divorced. She lived alone with her twelve and fourteen-year-old sons, Brad and Jim. Brad had gotten himself into trouble several times with the police

> for disruptive behavior, for vandalism, and for shoplifting. Lois consulted a psychologist saying that Brad's behavior at home was also unsatisfactory. He was sullen and frequently angry, and she did not know how to handle him. A token system was suggested, but she rejected it as too time consuming and furthermore she did not believe in using rewards. It was arranged instead for her to administer attention and praise when she observed the focal behavior, sitting at his desk reading or writing. The plan was not carried out. When his mother tried to praise him, Brad reacted in anger. He intimidated her with his use of foul language and she became enraged. The fact was that their relationship had spiraled to such a low level that all interactions were unpleasant to them both. The praise Lois tried to administer turned into rebuke. The William's case was terminated by the mother and Brad's behavior worsened over the next few years.

This family represents the reasons for not dealing directly with the problematic child and behavior that is highly charged emotionally. Although Ms. Williams said that she did not believe in using rewards, this same "philosophical" objection would not have been raised had Jim been the focal person instead of Brad. When the mediator and focal person are in a vicious cycle of interaction, it is often best to work with other aspects of the situation. Although Jim was not considered a problem, there is always room for improvement and any improvement is likely to have ramifications that affect other relationships within the family. By using small steps, Brad's behavior could be worked with as well as Jim's, but it should be emphasized that the behavior chosen should not be the referral behavior. Another possibility would be to have Brad share the mediating for Jim with his mother, drawing him into the plan and family activity in this way.

Objections to operant mediation on the grounds that it is bribery indicates there is a lack of understanding of the procedures or disinclination to using positive reinforcement. The society makes contradictory demands on parents. On the one hand, they are charged with the responsibility of producing adults able to get along in the world and on the other it is implied that a child's traits are fixed at an early age. The child is blamed for "badness," but should not be "bribed" into good behavior. Children should be able to do this on their own. Significantly, punishment is not similarly criticized. Society upholds that it is the responsibility of the parents to teach through punishment; it is wrong to use positive inducements for behavior that the child has a "moral" duty to engage in, such as obedience. These messages confuse parents and are probably responsible for one of the most common ways that mediator behavior interferes with the mediation, i.e. "stinginess."

> The token system, menu, contingency chart, and mediation functions had been carefully arranged for altering the focal behaviors of eight-year-old Martha. These behaviors

> included changing into play clothes after school, helping with the evening meal, and studying before turning on the TV set. The BA's instructed the parents to begin giving out tokens to meet the agreed on daily average of about ten tokens. That focal behaviors would be weak or non-existent in the beginning was discussed with Martha's parents. Very small steps in the direction of improvement or engaging in other behaviors that the parents liked were to be followed by tokens. Although they said that they understood, when the behavior assistants met with the parents a week later, tokens had been dispensed on the average of only 3 per day. The parents said that Martha had not engaged in the behaviors discussed so they did not feel that it was right to give her anything when she had not improved.

At the very outset of a mediation plan, the amount of reinforcement received by the focal person should increase. This is what is often so difficult for mediators to understand. The idea of giving out tokens "for nothing" must be explained as essential to providing tokens with the value they must have if improvement in focal behaviors is to occur.

Stinginess may occur for other reasons than not wanting to give something for nothing. A mediator may have been chosen who finds the tasks difficult because of their schedule. The way tokens are dispensed may be part of the difficulty. Does the mediator hand them to the focal person, drop them into a jar on the person's window sill, or place them on the television set in the living room? Handing tokens directly to the person has the advantage of immediacy but it risks reviving negative interactive tendencies. Placing tokens in a designated place is usually better if the location chosen is convenient for the mediator. If a mediator must, for example, climb a flight of stairs just to administer tokens, a certain degree of reluctance is built in to the plan.

If stinginess persists, then changes of mediator, focal person, focal behaviors, or even backup reinforcers may be needed. For example:

> The behavior assistants in the Evans family found that the stinginess resulted from a poor choice of some of the backup reinforcers. Mr. Evans had agreed to take his son Michael fishing if a certain number of tokens accumulated. But the father actually disliked fishing and hoped that the trip would never occur. This led to disinclination when it came to dispensing the tokens.

The success of an operant mediation depends on the mediator's behavior. If for any reason the mediator is not carrying out the designated behaviors, the plan cannot succeed.

I want to give out the tokens but I am sometimes just too busy; then when I get a break I relax and forget about them. I just can't seem to do it the way we planned. This is an indication that the task be made easier for the

mediator. Observation of the focal person might be restricted to carefully selected times of the day.

> Ethel Wilson complained to the behavior assistants that she could not observe her daughter Jane's play behavior all the time in order to reinforce the kinds of play that she wished to increase. The behavior assistants gave her a pocket timer which she set for various times during the day. When the buzzer sounded she observed Jane, and if the required behaviors were occurring at the time, she gave a token. Then she reset the timer for a different interval.

Not only is continual observation of the focal behavior not necessary, it is not even desirable in most cases, and it is almost always impossible. Exactly when observations are to be made should be a part of the mediation plan. It should not happen haphazardly or only at those times that are most convenient. The stimulus that initiates an observation period must not be perceptible by the focal person. If the focal person knew that an observation period was beginning, behavior would change accordingly. If observation periods are not planned irregularly (randomly, wherever possible), the same condition that reminds the mediator to observe will come to serve as a discriminative stimulus for the focal person.

> Before she began using the timer, Ethel Wilson would observe Jane's study behavior during commercial breaks on television. Jane soon learned to anticipate when her mother would come in because the commercials had a distinct tone which differed from the regular programming. When her mother came to observe, Jane would pretend to study.

Sometimes tokens are not valued by the focal person. When the focal person does not value the tokens the plan is doomed to failure. As with any problem, the first thing to do is have a long hard look at the situation. The items on the menu may be valueless, despite the care with which the menu was set up. What may have seemed effective at a verbal level may not be so effective after all.

> In setting up their menus, ten-year-old Phil and eleven-year-old Mark Noble's parents assumed that trips to zoos and museums would be effective backup reinforcers. When asked, the boys said that they agreed. However, the tokens were never saved for these events but were used for cheaper items such as ice cream. Even ice cream seemed to lose its value after a while. Both children became less interested in their tokens, even failing to remove them from the jar in which they were placed by the parents. Eventually, neither boy asked for one. When the menu was reevaluated it was decided that the error had been

> not recognizing that Phil and Mark were much more interested in sports events and movies than in museums. When a forthcoming rock concert was added, their interest skyrocketed.

Menus should be continually inspected and analyzed to determine whether they are still effective, i.e. which items are purchased, what ones are not, and can new ones be added. Very often, neither mediator nor focal persons happens to think of excellent items that are there, but undiscovered.

> Fourteen year old Miriam used the telephone from about four in the afternoon until supper time, or so it seemed to the family. Less time on the phone had been considered as one of the focal behaviors except that it was inconvenient for anyone to measure it with accuracy. Usually, Miriam ended her conversations only when some other member of the family insisted that either they had to make a call or were expecting one. It was the suggestion of Miriam's older brother Mike that ability to use the telephone without being pressured to end her conversation be included as a menu item. This regulated her phone use somewhat and was actually easier for the rest of the family to deal with. For ten tokens Miriam could buy an hour of telephone time between the hours of four and eight in the evening. All she had to do was post the time on the bulletin board in the kitchen. The family cooperated in not bothering her at those times but continued to interrupt her conversations when she used the phone at other times. In fact, they felt freer to do so.

Such "activity" reinforcers are often neglected because they are not seen as a special "reward." Yet they are particularly good because they are not expensive nor do they usually consume an inordinate amount of anyone else's time. Other examples of activity reinforcers are:

> Allowing use of some item for a specified time, such as: power tools, the kitchen for baking cookies, the sewing machine, the living room for entertaining friends. Being allowed to stay out or stay up longer than would ordinarily be permitted.

Another reason why tokens may lose value is that they are given too infrequently. The reason may be that criteria are too stringent. This is not to be confused with stinginess which leads the mediator to dispense fewer than the agreed on tokens, but to a plan which is not appropriate to the situation, possibly due to an error in baseline recording. Sometimes baseline is not really representative because the focal person for some reason exhibits an unusual quantity of the behavior during that time.

> When Rita's mother took baseline records of her studying behavior she found that Rita spent an hour each evening

> on the average engaged in this activity. It was decided to reinforce studying that was longer in duration than one hour and ten minutes. However, when the mediation went into effect, studying time dropped to less than one half hour per day. The problem was that the baseline period was unrepresentative because at that time Rita was reading a novel for English.

An operant mediation is the redirecting of attention from undesirable behavior to desirable behavior. The plan is a complicated and deliberate structure designed to produce the behavior of attending to and reinforcing, thereby increasing the strength of those behaviors which occur at low operant levels. These behaviors would be of importance to the person if they occurred more often and in greater strength. Behaviors are chosen that will be reinforced by others in the person's environment. Tokens and the dispensing of them must have value for the focal persons if this is to be accomplished. Behavior assistants should be careful in designing plans that will not substitute mediation for previously given attention. Here is an example of a situation that backfired:

> George Michaels took his role of father very seriously. In the evening after dinner, he made a point of conversing alone with each of his three teen-aged children asking them about their day, and telling them a little about his. The mediation plan appealed to him greatly because not only was he concerned about the children's inefficient study habits, but it particularly suited his temperament to be deliberate and orderly in his behavior. The evenings began to be spent in administering tokens according to a fairly complex set of intermittent schedules. Mr. Michaels spent over an hour each night going from room to room making observations and dispensing tokens. Strangely, considering the care with which it was being carried out, the mediation was obviously failing. The menus were reexamined, the number of tokens per day was checked, and the use of children as mediators as well as focal persons was considered. It was a long time before Clyde, the oldest boy, articulated the difficulty. The items on the menu were valuable, but not as valuable as the kind of attention that the children had received from their father before the mediation was begun. The time spent in conversation was now being spent in dispensing tokens and the children missed the attention they had formerly received.

A most difficult and pervasive problem is to be able to introduce a mediation plan without detracting at all from the good things that are already occurring. That is, the mediation must not reduce the total amount of reinforcement or involve taking away anything of value that the focal person had been accustomed to receiving.

In this, behavior assistants and consultants need a maximum of cleverness, originality, and experience. Never overlook the potential

in ordinary events, objects and substances for their use as backup reinforcers.

> Larry, although only three years old, took to the tokens immediately. He kept them in a row on the bottom shelf of his bookcase, and purchased items at store time with as much enthusiasm and care as did his seven year old sister. The tokens consisted of twenty large red buttons which had been removed from his mother's old dress. Among backups were being permitted to turn on the color tuning knob on the television set for two minutes, a run outside in the yard with the family dog, having a story read to him by his father, playing his favorite record on the stereo set in the living room after supper, a cookie, and a chance to play with one of the "special" toys (his own formerly unused playthings).

Note that Larry's backups involved no deprivations, cost little to other members of the family in either money or time, and yet were valued. From time to time changes were made in both backups and in the number of tokens required to redeem them. Items rarely used were made cheaper, i.e., Larry's "special" toys.

When more than one child in the family receives tokens, might they not upset the system by competing or by trading? Tokens could become aversive for the child who receives fewer tokens than another child in the same family. For this reason, it is recommended that each child receive the same daily average. Since this does not mean that they would receive the identical number of tokens each day, the competitiveness could persist. Competitive behaviors such as asking how many tokens another child has received, complaining that another child has not accomplished certain chores, or bragging about the number of tokens they themselves receive are referral behaviors which may be indirectly reduced through reinforcement of behaviors incompatible with them, for example, the mediators can dispense tokens to the child for cooperative behavior and for not making competitive comments.

GLOSSARY

Atmosphere

The atmosphere in a family is basically a matter of relative frequency of positive reinforcement versus the use of aversive techniques.

In a family with positive atmosphere, members tend to observe each other more and to deliver rewards, e.g. praise, attention, favors, spontaneously to one another. In a negative atmosphere few rewards are dispensed and family members tend to avoid interacting with one another.

A major goal of family mediations is to make the atmosphere more positive.

Aversive (note: there is no such word as "adversive")

The general term for unpleasant. Aversive control involves punishment or avoidance contingencies. The term is also used when deprivations are used to build reinforcers and for negative reinforcement. We use no form of deliberate aversive control.

Back-up rewards

Items believed to be valued by focal persons which can be obtained through purchase with tokens. The value of the tokens are dependent on the value of the back-up rewards. Therefore, a mediation plan with ineffective back-up rewards is doomed to early failure.

Later, if the plan is successful, the tokens will take on value in themselves, and eventually, so will the behavior that produced the token. At that point, deliberate mediation may no longer be necessary. But in the beginning, valued back-up rewards are essential to success.

Baseline

Measured level of focal behavior frequency before the mediation is begun. Initial rate.

Charted focal behaviors

Focal behavior for which occurrence is recorded by the mediator(s). In selecting which focal behaviors are to be recorded (or "charted"), consideration is given to (1) observability, (2) ease of recording.

Full recording of some behavior is important both in setting up new criteria for record during thinning and in displaying evidence of progress.

Contingency

The relationship between a behavior and a reward. Specifically, precisely what behavior, under what conditions will, according to the mediation plan, be followed by the dispensing of what reward, at any given time.

Contingency table	A list of focal behaviors and the rewards which will follow them according to the mediation plan. The contingency table (1) is not seen by focal persons and (2) changes during the mediation as original focal behaviors increase in strength and are thinned or dropped and as new focal behaviors are added.
Contract (or "contingency contract")	A technique commonly used by persons calling themselves operant appliers or behavior modifiers which, however, is not here recommended. In a contract, the focal person is told exactly what the reward contingencies are, i.e. what behavior will produce what reward. Disadvantages of contracts are (1) There is an aversive contingency built in. If you do this, I'll give you that implies that if you don't I won't. It is likely that the behavior reinforced by contracts (if any) is that of agreeing to a contract, not the behavior specified in the contract (focal behavior). On the other hand, contracts, e.g. employment contracts, are important in the management of behavior. Contracts get behavior to occur; it is unlikely that they increase inclination. They may even reduce inclination to engage in the behavior at other times or under conditions other than those specified in the contract.
Discriminative stimuli	Stimuli which have in the past preceded the rewarding of some particular behavior. In the presence of such stimuli, the behavior is likely to be repeated. Also called cues to reward.
Extinction	Getting rid of unwanted behavior by removing its reinforcers. This is difficult to do when mediators do not control the reinforcers. Eating candy, for example, is reinforced by the taste of the candy which cannot be separated from the candy (and still have it be candy). Often, however, mediators find that they have been inadvertently reinforcing undesirable acts with attention. This can sometimes be dealt with. A good example is the removal of reinforcers given to a two-year-old when mother is on the telephone. Sham phone calls are "extinction trials."
Focal behavior	The specific acts on the part of focal persons for which rewards are planned and which are listed in the contingency table.
Focal person(s)	The person or persons whose behavior will be rewarded according to the mediation plan.

Intermittent reward schedule	A given focal behavior is not rewarded every time it occurs. It may be rewarded every other time, after five occurrences, only on Tuesdays and Fridays or each day only during a randomly selected and varied times of the day. There are endless types of intermittent schedules. As a mediation continues, and focal behaviors improve behaviors are placed on schedules such that they are less often rewarded. (Other behaviors are simultaneously added so that the total amount of reward does not decrease). Intermittent schedules help keep rewards "unexpected" and they produce behavior that is less likely to weaken when unrewarded.
Maladaptive behaviors	Behaviors which lead to a decrease in the rewards obtainable in the person's natural environment.
Manipulation	A change which is expected to produce a change in behavior. For example, rescheduling activities, introducing a token system, altering the physical environment. Operant behavior is never directly "manipulated" since it is under the voluntary control of the individual who emits it.
Mediator(s)	The person or persons, usually in the natural environment, who actually carry out the mediation by (1) observing the behavior of the focal person (2) delivering rewards, usually in the form of tokens and (3) providing back-up rewards for which tokens can be exchanged.
Menu	A list of back-up reinforcers with the amount of tokens needed to purchase them. The menu is given to the focal person or publically displayed. It represents a kind of contract in that the mediator has agreed that if the focal person has the requisite tokens, the back-up reward will be provided. When (e.g. daily at 6 PM, every Saturday morning after breakfast, or "anytime") must be established at the outset to the mutual agreement of mediator and focal person.
Modeling	Behavior observed in others is imitated.
Negative reinforcement	Rewarding behavior by removal of aversive stimulation, e.g. an unpleasant noise is stopped contingent on a particular response.
Other behaviors	Behavior which was not planned for and is therefore not listed in the contingency table but which a mediator likes and therefore decides, spontaneously, to reward. Rewarding of other behaviors is encouraged by behavior assistants. About 25% of the average daily tokens are used for other behaviors. The advantage of encouraging the reward of other behaviors is to encourage "searching for the good."

Overt behavior	Behavior that can be observed by others, e.g. walking, talking. Thoughts and feelings are behaviors, but they are not overt. They must be inferred on the basis of overt behavior such as body posture and verbalizations.
Partially charted focal behavior	In order to keep down the tasks required of mediators, full charting is required of relatively little behavior. Behavior that occurs more frequently requires more recording effort. Some behaviors are virtually impossible to record fully. We therefore "partially chart" important focal behaviors that would be difficult or impossible to chart fully. This can be done on a one day a week, or one hour a day, basis, or in any other manner deemed suitable for an individual situation. By charting even partially, progress may be observed.
Premack Principle	Behaviors which occur more often can be used to strengthen those which occur less often. (or, as is often stated, "High probability behaviors can be used to reinforce low probability behaviors.) How often a behavior occurs "naturally" becomes a guide to its reinforcing potential. Eating candy is a high frequency behavior for most children in that if given a piece the child will eat. But for a particular child it might be a low probability behavior (we say the child does not "like" candy). Use of this principle helps us find effective reinforcers we might otherwise have missed. Watch and see what occurs then use opportunity to engage in that behavior as a reward. For example, a teacher who noticed the class often talked waited for a period of good work then said, "You all may now talk for one minute." If her baby lay still during diapering, a mother handed him a special toy to hold.
Punishment	Punishment means administering aversive stimulation following a behavior. Do not confuse it with negative reinforcement.
Referral Behaviors	Behaviors which would be mentioned in response to the question "What problems exist in this family?" Usually referral behaviors are behaviors that are unwanted and need to be reduced, not strengthened. They are often stated as traits, e.g. "lazy," "uncooperative." Generally, we try to stay away from referral behaviors in the interest of focusing attention away from the undesirable, but focal behaviors may be selected partly for their indirect effect on referral behavior since referral improvement would probably result in a generally more satisfactory situation.

Reinforcement	The process whereby inclination to perform a certain act is increased. It is generally accepted that pleasant events such as the receiving of a reward (or "reinforcer") encourages this process.
Reward	An event believed to be valued by the focal person which is administered following focal behavior in the hope of strengthening (reinforcing) that behavior.
Secondary reinforcement	Learned reinforcement. Stimuli associated with reinforcement take on reinforcing properties. Tokens are initially neutral, but become secondary reinforcers because of their association with back-up reinforcers.
Shaping	Producing desired behavior through reinforcing successive approximations to the behavioral goal. For example, in teaching a child to eat with a fork despite spills would be rewarded. Still later reward would be made contingent on eating with the fork without spilling. Shaping involves the principle of small steps.
Small steps principle	Always allow reward to be contingent on a small step away from the present rate at which the behavior occurs in the direction of the ultimate goal. Baseline recording, and continued recording of focal behavior incidence provides a measurement of present rate. "Smallness" must be judged for the particular person in the particular situation taking account of rate of past changes, if any, and any other available information.
Split mediation	More than one person carries out the mediation plan. For example, the teacher observes behavior at school and dispenses tokens. Parents observe behavior at home, dispense tokens and provide back-up rewards for tokens earned both at home and at school.
Stinginess	A frequently encountered reluctance to dispense rewards on the part of mediators, usually at its height at the beginning of the mediation. Behavior assistants must be on the lookout for such failure to follow the mediation plan.
Thinning	Traditionally, thinning means shifting to intermittent schedules of reward as the rewarded behavior increases in strength. In our mediations, thinning the rewards for one behavior is accompanied by adding additional focal (or "other") behaviors so that while the thinned behavior receives less contingent reward, the total amount of reward (e.g. mean daily tokens) received by the focal person does not decrease.

Tokens	Tangible items such as poker chips, dry lima beans, or pennies that have little value in themselves but which take on considerable value because they can be exchanged for back-up rewards. Tokens enable a large reward such as a trip to the zoo or an ice cream sundae to be broken up into many bits allowing mediators to reward many instances of behavior immediately and conveniently. They also allow for nonverbal reward in situations in which verbal exchanges between mediators and focal persons are aversive due to aversive contingencies of the past.
Uncharted focal behaviors	Behaviors listed on the contingency table but not recorded by the mediator(s). The reason for not recording the occurrence of some focal behaviors is to keep the functions of the mediator(s) within bounds so that too much is not required. Record-keeping is an unpleasant task for many people. It is also often truly unfeasible to record all focal behavior occurrence Furthermore, by requiring less, we hope to get good records on what little we have elected to record.

About the Author

Dorothy Tennov, Ph.D., is Professor of Psychology at the University of Bridgeport where she introduced a course in behavior modification in 1969 and a course in self-management in 1976. She is an experimental psychologist whose work in applications of operant principles began in the 1950's and continued through the raising of her own children. She has conducted or supervised unexpected reward mediations with over one hundred families during which the procedures described in this manual were developed and refined.

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